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September 2003

National Potato Germplasm Evaluation and Enhancement Report, 2001

Seventy-Second Annual Report by Cooperators

United States
Department of
Agriculture

**Agricultural
Research
Service**

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National Potato Germplasm Evaluation and Enhancement Report, 2001

Seventy-Second Annual Report by Cooperators

Compiled and edited by Kathleen G. Haynes

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Beltsville Agricultural Research Center
Agricultural Research Service
U.S. Department of Agriculture
Beltsville, MD 20705

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EASTERN REGION

Gregory A. Porter, Professor of Agronomy,
University of Maine, Orono, ME.

Cooperators in 2001: Florida: Chad Hutchinson, J. Marion White and Pete Weingartner; Maine: Gregory Porter and Paul Ocaya; North Carolina: Craig Yench and Mark Clough; New Jersey: Mel Henninger; Long Island, New York: Joe Sieczka; Upstate New York: Don Halseth; Ohio: Matt Kleinhenz and David Kelly; Pennsylvania: Barbara Christ and William Lamont; Quebec: Pierre Turcotte and Gilles Hamel; and Virginia: Rikki Sterrett.

Twenty-three trials were conducted in eight states and one Canadian Province. Sixteen named varieties and 19 numbered clones were available to the cooperators. Seed for all clones and varieties were grown by the University of Maine at Aroostook Research Farm. Seed-pieces were prepared, cut, and suberized by the staff at the University of Maine Agricultural and Forest Experiment Station in Presque Isle, Maine. Cultural practices were generally similar to those used by commercial growers near each location.

Objectives: The objectives of this regional project are: (1) to develop pest-resistant, early maturing, long-dormant varieties that will process from cold storage; (2) to evaluate new and specialty varieties developed in the Northeast; (3) to determine climatic effects on performance to develop predictive models for potato improvement; and (4) determine heritability/linkage relationships and improve the genetic base of tetraploid cultivated varieties.

Results: Total yield, marketable yield, specific gravity, tuber size, tuber defects, chip color results, boil and bake results are presented in Eastern Region Tables 1 to 5. For round whites, AF1615-1, Keuka Gold, Kennebec and NY112 had the highest total yields. These three lines were the only ones in the 2001 regional trials that had marketable yields exceeding those of Atlantic. On a site-by-site basis these respective varieties had marketable yields averaging 103, 118, 122% those of Atlantic. Katahdin, Snowden, AF1758-7, B0766-3, B1240-1, and B1425-9 also provided relatively high marketable yields (average of 90% or better over locations compared to Atlantic on a site-by-site basis). Specific gravities of Aquillon, Snowden, B1425-9, and W1313 approximated or exceeded those of Atlantic at comparable sites. Katahdin, AF1758-7,

and AF1763-2 had average specific gravities below 1.070. Atlantic, Eva, Kennebec, Yukon Gold, AF1455-20, AF1569-2, AF1938-3, B0766-3, B1240-1, NY112, and W1242 sized well in most trials. Most lines had a high incidence of external defects during 2001 and many had more than 9% external defects. Exceptions with low incidence of external defects were Keuka Gold, Snowden, B0766-3, NY102, NY112, and NY115. Atlantic, Katahdin, Yukon Gold, B1240-1, NY112, W1242, and W1313 had high incidence of hollow heart. Aquillon, Atlantic, Envol, Eva, Keuka Gold, Snowden, AF1668-60, B0766-3, B1240-1, NY102, NY112, NY115, and W1242 chipped well in most 2001 tests. In addition to these lines, AF1455-20, AF1569-2, AF1775-2, AF1938-3, and B1425-9 produced good chips out of the field. Eva, Katahdin, Keuka Gold, Superior, AF1758-7, AF1763-2, and NY102 scored well in boiling tests. Atlantic, Eva, Katahdin, Kennebec, Superior, AF1615-1, B0766-3, NY102, and NY112 scored well in baking tests.

CO86218-2 was the only red-skinned test line in NE-184 trials during 2001. Yields averaged about the same as those of Dark Red Norland. Specific gravity averaged similar to the standard lines and tuber size was fairly small. Compared to standard lines, it had similar external defect incidence and low hollow heart incidence. It did not receive good boiled quality scores in the New York test.

B1409-2 had the highest total and marketable yields of the russeted and long-white types. It was the only test line that exceeded Russet Norkotah marketable yields at comparable locations (118%). All of the test lines consistently exceed Russet Norkotah's specific gravity and averaged near 1.080. Russet Legend and AF1753-16 produced the largest tubers. Only Russet Norkotah had less than 20% external defects. B1409-2 was next best at 21%. Gem Russet, Russet Burbank, and Russet Norkotah had hollow heart problems during 2001. Gem Russet, Russet Burbank, and Russet Norkotah had poor scores in boiled quality tests. Gem Russet, Russet Burbank, and AF1753-16 were tested for baking quality and received good scores.

Eastern Region Table 1. Total yields (cwt/acre) for 16 named varieties and 19 numbered clones grown at 15 locations in the eastern United States and eastern Canada.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NC	NJ	NY1 ²	NY2 ²	OH	PA1 ³	PA2 ³	PA3 ³	PA4 ³	QUE	VA	Mean
<u>Round Whites</u>																
Aquillon	220	342	264	365	311	485	630							304		365
Atlantic	271	418	402	409	295	455	557	478	194	580	356	388	245	424	186	377
Envol	161		196	250	200	345	383	309								263
Eva (NY103)	234	415	274		208	408		417	245					188		299
Karabdin	232	461	333	391	217	426	635	485	251	478	287	401	272	375	229	365
Kennebec	250	426	338	371	261	498	638	460	288					458	184	379
Keuka Gold	271	490	389	343	340			549	311				303	526		402
Snowden	216	376	277	366	323	393		527	339	533	416	445		450	240	372
Superior	178	326	266	259	227	422	414	308	195	613				442	82	311
Yukon Gold	176	344	272	360	134	347	411	379	77	481		406	101	347		295
AF1455-20	194		260	324	235	412		429	219	499				265		315
AF1569-2	221		346	345	306					728			409	324		378
AF1615-1	229	400	304		256	470	675	433		690				456		432
AF1668-60	165	245			218					346				173		229
AF1758-7	215	381	381	351	162			544	210	570					240	339
AF1763-2	153		296	322	234		470	439	191	447				305	101	296
AF1775-2	256	385		256					167	696				292	156	315
AF1938-3	246	305	306	301	249	487	547	427		502				445		382
B0766-3	271	441	319		254	420		444	304	514		356		272	138	339
B1240-1	276	376	348	368	230	414				611				458	137	355
B1425-9	276		371	416	268			575	178	593			333	521	128	366
NY102	193	387	282	327		376		363	239	382				316		318
NY112	305	452	397	417	311	479		586	254	610	422	436	334	366	258	402
NY115	265	362	309	372	230	434		428	199	447	233	351	293	216	188	309
W1242				394	197				165	499				367	145	295
W1313	259	369		361	232			462	127	402				382		324

Eastern Region Table 1. Continued.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NC	NJ	NY1 ²	NY2 ²	OH	PA1 ³	PA2 ³	PA3 ³	PA4 ³	QUE	VA	Mean
<u>Red Clones</u>																
Chieftain	179		348	294	329			488	280	466				512		362
Dark Red Norland	191		267	283	218			436	191	435	278			321		291
CO86218-2	117		262	130	246			430	243	508	414			368		302
<u>Russets/Long Whites</u>																
Gem R. (A8495-1)	152		219	221		416		400		352				404		309
R Burbank	218		312	269		554		499	176					340		338
R Legend				295				326		281				275		294
R Norkotah	198		269	341		391		312		481				404		342
Shepody	276		300	143				440						456		323
AF1753-16	229		341	409		544			314	279				300		345
B1409-2	214		291	432		572		428						377		386

¹Trials were conducted in three Maine locations, Presque Isle (ME1), Exeter (ME2), and St. Agatha (ME3).

²The two trial locations in New York were Riverhead, Long Island (NY1), and Freeville (NY2).

³Trials were conducted at four Pennsylvania locations, Rock Springs (PA1), Erie (PA2), Lancaster (PA3), and Somerset (PA4).

Additional Note: Some states (ME, NJ, NY) had several clones tested in two or more trials per location.

Eastern Region Table 2. Marketable yields (cwt/acre) for 16 named varieties and 19 numbered clones grown at 15 locations in the eastern United States and eastern Canada.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NC	NJ	NY1 ²	NY2 ²	OH	PA1 ³	PA2 ³	PA3 ³	PA4 ³	QUE	VA	Mean
<u>Round Whites</u>																
Aquillon	194	276	221	345	264	385	562		151	516	308	325	213		143	321
Atlantic	242	384	334	395	262	410	494	409								328
Envol	135		152	228	180	302	335	285								231
Eva (NY103)	182	322	240		194	367		329	207							263
Katahdin	208	368	255	350	192	382	573	357	174	402	264	346	231		192	307
Kennebec	211	344	239	328	232	354	427	167	143						141	259
Keuka Gold	245	467	352	325	319			460	254							346
Snowden	199	358	244	355	305	348		428	259	440	371	399	248		186	318
Superior	126	304	198	233	211	357	364	267	99	561					70	254
Yukon Gold	156	276	207	330	129	278	385	240	34	403		352	88			240
AF1455-20	166		227	305	217	366		320	165	449						277
AF1569-2	174		259	325	279			356		584						324
AF1615-1	200	345	236		227	418	587			629			345			371
AF1668-60	130	227			175					255						197
AF1758-7	193	360	346	320	119			371	136	510					178	281
AF1763-2	119		224	295	195		336	377	128	404					84	240
AF1775-2	234	326		244			497		96	656					129	281
AF1938-3	207	250	218	288	220	399		311		456						316
B0766-3	246	394	262		226	358		339	236	479		319			112	297
B1240-1	233	259	295	347	200	365				534			289		121	294
B1425-9	220		275	383	230		405	405	116	534			268		100	281
NY102	172	338	262	306		326	308	308	172	356						280
NY112	284	422	379	395	298	453	510	510	213	556	396	397	305		227	372
NY115	230	319	242	346	194	379	389	389	157	421	224	320	248		140	278
W1242				381	176				111	459					108	247
W1313	286	349		338	199		363		52	337						275

Eastern Region Table 2. Continued.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NC	NJ	NY1 ²	NY2 ²	OH	PA1 ³	PA2 ³	PA3 ³	PA4 ³	QUE	VA	Mean
<u>Red Clones</u>																
Chieftain	149		306	276	231			344	172	374						265
Dark Red Norland	154		227	249	165			285	162	381	240					233
CO86218-2	78		221	101	183			305	146	438	372					231
<u>Russets/Long Whites</u>																
Gem R. (A8495-1)	125		102	137		352		254		251						204
R Burbank	156		153	195		354		174	42							179
R Legend				272				202		211						228
R Norkotah	169		247	305		340		187		393						274
Shepody	208		53	121				271								163
AF1753-16	128		20	361		284			84	240						186
B1409-2	189		121	387		521		308								305

¹Trials were conducted in three Maine locations, Presque Isle (ME1), Exeter (ME2), and St. Agatha (ME3).

²The two trial locations in New York were Riverhead, Long Island (NY1), and Freeville (NY2).

³Trials were conducted at four Pennsylvania locations, Rock Springs (PA1), Erie (PA2), Lancaster (PA3), and Somerset (PA4).

Additional Note: Some states (ME, NJ, NY) had several clones tested in two or more trials per location.

Eastern Region Table 3. Specific gravities (1.0 excluded) for 16 named varieties and 19 numbered clones grown at 15 locations in the eastern United States and eastern Canada.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NC	NJ	NY1 ²	NY2 ²	OH	PA1 ³	PA2 ³	PA3 ³	PA4 ³	QUE	VA	Mean
<u>Round Whites</u>																
Aquillon	83	91	89	80	69	88	87							88		84
Atlantic	82	91	90	80	71	92	90	89	85	94	69	87	82	90	88	85
Envol	92		88	68	63	72	78	71								76
Eva (NY103)	70	76	76		63	73		71	70					81		73
Katahdin	74	75	79	63	55	75	76	72	64	77	63	69	62	65	72	69
Kennebec	69	80	80	66	60	79	75	74	73					81	74	74
Keuka Gold	70	76	72	72	71			76	70					83		74
Snowden	77	93	91	79	72	83		86	79	86	70	80	75	91	85	82
Superior	92	77	91	77	61	75	79	76	65	80			77	78	68	77
Yukon Gold	80	81	83	74	63	78	82	81	70	83		77	75	86		78
AF1455-20	85		88	74	66	83		83	76	91				91		82
AF1569-2	76		74	74	59					74				63		70
AF1615-1	78	82	83		57	77	75	79		81			71	82		77
AF1668-60	92	84			64					109				78		85
AF1758-7	65	67	72	52	39			64	61	50			60			59
AF1763-2	82		70	61	50		64	63	63	62			54	62		63
AF1775-2	70	86		71					77	91				86	78	80
AF1938-3	71	76	71	66	66	78	79	77	69	79		79		71		73
B0766-3	75	87	83		70	79		81	80	87				81		80
B1240-1	80	87	84	69	70	88				85			85	78	79	81
B1425-9	87		93	82	76			92	91	123			78	99	88	91
NY102	78	88	89	77		83		86	78	84				91		84
NY112	76	86	84	71	69	86		82	77	87	70	79	74	76	79	78
NY115	79	77	87	67	62	81		77	70	87	64	73	73	80	74	75
W1242				74	69				67	85				89	83	78
W1313	87	100		84	79			92	89	93				92		90

Eastern Region Table 3. Continued.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NC	NJ	NY1 ²	NY2 ²	OH	PA1 ³	PA2 ³	PA3 ³	PA4 ³	QUE	VA	Mean
<u>Red Clones</u>																
Chieftain	72		70	65	58			66	60	75				67		67
Dark Red Norland	80		74	61	58			61	60	64	47			70		64
CO86218-2	66		75	55	56			73	69	77	65			68		67
<u>Russets/Long Whites</u>																
Gem R. (A8495-1)	77		76	67		76		84		86				88		79
R Burbank	83		76	67		76		81	70					90		78
R Legend				67				77		75				101		80
R Norkotah	80		70	67		64		68		72				71		70
Shepody	79		84	77				83						66		78
AF1753-16	80		79	68		82			89	93				76		81
B1409-2	87		84	74		81		84						80		82

¹Trials were conducted in three Maine locations, Presque Isle (ME1), Exeter (ME2), and St. Agatha (ME3).

²The two trial locations in New York were Riverhead, Long Island (NY1), and Freeville (NY2).

³Trials were conducted in four Pennsylvania locations, Rock Springs (PA1), Erie (PA2), Lancaster (PA3), and Somerset (PA4).

Additional Note: Some states (ME, NJ, NY) had several clones tested in two or more trials per location.

Eastern Region Table 4. Percentage yield of tubers in the 2.5 to 4 inch size range for round whites and reds and russets greater than eight ounces for 16 named varieties and 19 numbered clones grown at 14 locations in the eastern United States and eastern Canada.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NC	NJ	NY1 ²	NY2 ²	PA1 ³	PA2 ³	PA3 ³	PA4 ³	QUE	VA	Mean
<u>Round Whites</u>															
Aquillon	52	71	54	52	57	48	52		49	43	38	24	48		54
Atlantic	59	77	64	77	68	61	66	70					52	54	57
Envol	42		51	31	73	56	56	64							53
Eva (NY103)	52	79	61		62	58		70					61		63
Katahdin	38	71	45	63	53	43	55	67	40	40	43	26	62	61	51
Kennebec	60	74	69	55	59	40	51	58					52	53	57
Keuka Gold	38	61	45	35	67			73					58		54
Snowden	50	63	42	73	70	43			22	26	32	11	54	55	45
Superior	25	78	47	12	58	58	31	56	58				54	62	49
Yukon Gold	42	78	53	69	76	53	65	59	67		47	7	55		56
AF1455-20	54		50	54	65	44		66	63				50		56
AF1569-2	49		48	58	67				73				59		56
AF1615-1	51	61	41		50	33	58	66	55			30	48		49
AF1668-60	34	52			52				58				48		49
AF1758-7	36	67	54	41	38			68	40					44	49
AF1763-2	21		38	43	53		29	58	38				42	65	43
AF1775-2	47	72		46					47				51	58	54
AF1938-3	61	74	55	64	53	60	64	68	60				48		61
B0766-3	49	78	58		58	47		69	52		38		57	59	57
B1240-1	71	77	68	69	57	70			62			34	52	71	63
B1425-9	43		30	54	43			66	40			16	43	54	43
NY102	20	68	35	40		30		51	38				60		43
NY112	56	79	54	80	67	59		74	52	62	45	23	53	75	60
NY115	24	55	26	50	11	32		53	58	52	35	20	65	43	40
W1242				61	49				65				71	45	58
W1313	48	57		47	47			56	54				58		52

Eastern Region Table 4. Continued.

Clone	ME1 ¹	ME2 ¹	ME3 ¹	FL	NC	NJ	NY1 ²	NY2 ²	PA1 ³	PA2 ³	PA3 ³	PA4 ³	QUE	Mean
<u>Red Clones</u>														
Chieftain	18		61	35	44			20	55				58	42
Dark Red Norland	11		25	39	29			7	50	7			36	26
CO86218-2	7		34	9	26			12	27	35			43	24
<u>Russets/Long Whites</u>														
Gem R. (A8495-1)	17		14			59		43	68					40
R Burbank	26		28			46		49						37
R Legend								70	75					72
R Norkotah	27		18			58		52	82					47
Shepody	40		37					48						42
AF1753-16	72		62			68			86					72
B1409-2	32		21			73		41						42

¹Trials were conducted in three Maine locations, Presque Isle (ME1), Exeter (ME2), and St. Agatha (ME3).

²The two trial locations in New York were Riverhead, Long Island (NY1), and Freeville (NY2).

³Trials were conducted in four Pennsylvania locations, Rock Springs (PA1), Erie (PA2), Lancaster (PA3), and Somerset (PA4).

Additional Note: Some states (ME, NJ, NY) had several clones tested in two or more trials per location.

Eastern Region Table 5. Average (sites x years) percent tuber defects and hollow heart, chip color, and bake and boil scores for 16 named and 19 numbered round-white clones. Number of comparisons (sites x years) are in parentheses.

Variety	Year(s)	% Tuber Defects				Hollow Heart	Chip Color ²				Recon- ditioned ⁴	Boil Score ⁵	Bake Score ⁵
		Total ¹	Sun- burn	Mis- shapen	Growth cracks		Out of Field ³	50-55°F Storage	45°F Storage				
Round Whites													
Aquillon	2001	11.0(7)	1.9(4)	2.1(4)	6.2(4)	2.9(8)	100	300	000	000	000	000	000
Atlantic	2001	9.7(19)	4.4(11)	2.6(11)	1.5(11)	11.3(23)	500	1010	011	900	106	100	100
Atlantic	12	8.5(103)	3.9(89)	2.1(92)	1.3(95)	6.9(130)	28196	571619	12417	23910	201017	2272	2272
Envol	2001	9.4(7)	2.0(4)	7.1(4)	1.0(4)	0.6(7)	100	100	000	000	000	000	000
Eva (NY103)	2001	9.8(9)	11.0(5)	1.5(5)	0.4(5)	0.6(10)	000	310	011	300	100	100	100
Eva (NY103)	6	11.8(41)	6.9(33)	2.4(33)	0.7(35)	1.2(57)	1220	21109	717	625	1452	921	921
Katahdin	2001	12.7(12)	10.6(7)	1.2(7)	0.7(7)	4.8(16)	100	103	001	101	310	100	100
Katahdin	12	11.0(88)	6.4(77)	1.3(77)	0.6(79)	4.7(119)	8714	51436	0124	2217	23201	16133	16133
Kennebec	2001	24.2(10)	8.9(5)	8.6(5)	3.2(5)	3.2(10)	110	320	002	111	020	100	100
Kennebec	12	18.3(72)	7.6(63)	4.5(63)	3.0(63)	3.1(96)	7516	201934	4122	5221	22155	13144	13144
Keuka Gold	2001	5.4(7)	3.1(5)	1.0(5)	0.3(5)	0.3(8)	100	200	100	000	200	000	000
Keuka Gold	2	3.8(13)	2.2(5)	0.8(10)	0.2(10)	1.5(18)	300	630	101	001	500	110	110
Snowden	2001	5.1(14)	3.3(7)	1.6(7)	0.3(7)	3.4(17)	600	900	200	700	012	000	000
Snowden	10	4.9(56)	2.5(45)	1.5(45)	0.3(45)	2.0(75)	2631	3899	1034	1722	968	723	723
Superior	2001	12.3(14)	2.6(6)	5.7(6)	3.3(6)	2.2(15)	240	230	001	001	210	100	100
Superior	12	6.5(79)	1.4(66)	2.7(66)	1.0(68)	1.4(111)	201217	142127	1419	0513	24136	15124	15124
Yukon Gold	2001	15.2(10)	6.4(6)	2.4(6)	0.8(6)	10.1(14)	000	042	001	011	110	000	000
Yukon Gold	12	10.4(51)	3.3(43)	2.2(43)	0.7(44)	6.1(60)	314	51025	019	018	1491	930	930
AF1455-20	2001	10.0(6)	2.9(3)	6.8(3)	0.3(3)	1.2(8)	200	102	000	100	000	000	000
AF1569-2	2001	10.6(4)	4.2(2)	3.9(2)	2.4(2)	0.1(2)	200	020	000	000	000	000	000
AF1615-1	2001	9.8(8)	5.9(5)	2.8(5)	0.6(5)	1.8(10)	100	222	001	001	020	100	100
AF1615-1	5	12.9(33)	6.2(28)	1.8(28)	0.4(29)	1.2(48)	530	6811	105	005	954	621	621
AF1668-60	2001	11.4(4)	3.6(2)	5.3(2)	1.6(2)	1.0(2)	000	300	000	000	000	000	000
AF1668-60	2	9.9(7)	5.5(3)	4.1(3)	1.9(3)	0.5(4)	110	400	000	000	000	000	000
AF1758-7	2001	11.2(7)	2.2(4)	3.8(4)	1.2(4)	0.6(8)	100	113	000	101	200	000	000
AF1758-7	2	11.4(17)	2.6(11)	3.7(11)	0.6(11)	0.6(17)	300	118	000	102	500	011	011
AF1763-2	2001	12.8(8)	1.8(4)	7.7(4)	3.8(4)	0.0(9)	220	003	000	100	100	000	000
AF1763-2	2	13.3(14)	2.1(7)	5.1(7)	2.5(7)	0.0(14)	231	007	001	102	111	002	002
AF1775-2	2001	15.9(4)	8.9(2)	0.2(2)	0.1(2)	0.0(5)	100	120	110	000	001	000	000
AF1938-3	2001	13.6(8)	6.7(5)	1.2(5)	3.3(5)	2.3(10)	400	102	000	100	000	000	000
B0766-3	2001	8.5(11)	2.5(4)	2.0(4)	2.2(4)	3.1(12)	400	600	200	400	010	000	000
B0766-3	5	9.4(38)	3.3(27)	2.3(27)	0.8(27)	2.9(51)	1500	2672	723	1031	1053	621	621

Eastern Region Table 5. Continued.

Variety	Year(s)	----- % Tuber Defects -----				----- Chip Color ² -----				Recon- ditioned ⁴	Boil Score ⁵	Bake Score ⁵
		Total ¹	Sun- burn	Mis- shapen	Growth cracks	Hollow Heart	Out of Field ³	50-55°F Storage	45°F Storage			
B1240-1	2001	12.3(8)	10.4(3)	1.7(3)	2.6(3)	5.9(3)	4.00	5.00	0.00	0.00	0.00	0.00
B1425-9	2001	19.2(6)	6.7(3)	4.5(3)	6.9(3)	0.0(8)	2.00	1.20	0.00	2.00	0.10	0.00
NY102	2001	7.1(8)	2.6(6)	1.0(6)	1.6(6)	1.8(10)	0.00	6.00	2.00	3.00	1.00	1.00
NY102	4	8.7(19)	2.4(17)	1.1(17)	1.0(11)	2.1(30)	3.10	15.63	5.13	5.01	6.22	3.21
NY112	2001	4.3(13)	3.5(7)	0.6(7)	0.4(7)	5.1(17)	3.00	8.10	1.10	7.00	0.10	1.00
NY112	3	4.7(29)	3.3(19)	0.5(19)	0.2(19)	2.9(38)	8.10	17.61	2.13	10.22	5.40	6.10
NY115	2001	8.4(12)	6.4(7)	1.1(7)	0.1(7)	1.1(16)	2.00	9.00	2.00	7.00	0.00	0.00
NY115	3	6.6(30)	4.1(21)	0.6(21)	0.1(21)	0.7(39)	7.00	20.31	3.12	10.31	5.01	2.20
W1242	2001	10.3(3)				17.5(4)	1.00	2.00	1.00	2.00	0.01	0.00
W1242	2	9.6(11)	7.1(5)	0.7(5)	2.3(5)	12.0(11)	4.00	5.20	1.01	5.10	1.12	0.11
W1313	2001	14.8(6)	3.3(3)	1.9(3)	2.2(3)	6.6(8)	0.00	4.01	1.01	3.00	0.01	0.00
W1313	2	11.2(13)	4.6(7)	1.2(7)	1.2(7)	3.8(14)	1.20	6.31	1.12	5.21	1.11	1.00
Red Clones												
Chieftain	2001	14.2(6)	5.6(3)	2.4(3)	1.7(3)	1.1(8)	0.00	0.10	0.00	0.10	1.00	0.00
Chieftain	12	5.9(40)	1.4(33)	1.2(35)	1.2(34)	0.9(55)	1.02	0.315	0.03	0.11	12.21	4.20
Norland, Dk Red	2001	9.8(6)	5.8(2)	3.0(2)	1.0(2)	1.1(9)	0.00	1.00	0.00	1.00	1.00	0.00
Norland, Dk Red	9	5.6(31)	1.0(23)	1.5(23)	0.9(23)	0.9(45)	2.14	2.87	0.02	1.10	5.21	3.21
CO86218-2	2001	11.1(5)	3.5(3)	3.3(3)	1.3(3)	0.3(8)	0.00	0.10	0.00	1.00	0.01	0.00
CO86218-2	2	7.8(14)	1.6(9)	2.1(9)	1.4(9)	0.4(16)	0.10	0.11	0.00	2.00	0.11	0.00
Russets/Long Whites												
Gem R. (A8495-1)	2001	26.4(5)	5.3(3)	9.9(3)	0.1(3)	3.5(4)	0.00	0.20	0.01	0.01	0.02	1.00
Gem R. (A8495-1)	3	14.8(15)	2.8(13)	6.0(13)	0.4(13)	5.9(18)	0.00	4.43	0.13	0.04	4.14	3.30
Russet Burbank	2001	37.3(5)	3.4(3)	28.0(3)	1.0(3)	7.1(6)	0.00	0.02	0.01	0.11	0.02	1.00
Russet Burbank	12	18.5(53)	1.4(51)	14.9(51)	1.1(47)	8.3(62)	0.10	1.624	0.016	0.114	19.57	13.120
Russet Legend	2001	21.7(2)	2.8(1)	6.1(1)	5.6(1)	0.0(2)	0.00	0.00	0.00	0.00	0.00	0.00
Russet Legend	4	13.5(9)	1.5(7)	3.9(8)	5.2(8)	2.2(15)	0.00	5.21	1.02	0.03	3.00	2.00
Russet Norkotah	2001	14.0(5)	3.1(3)	9.8(3)	1.2(3)	6.0(5)	0.00	0.11	0.01	0.01	0.01	0.00
Russet Norkotah	5	8.5(23)	1.6(21)	4.4(21)	0.6(21)	5.5(33)	0.00	0.320	0.09	0.07	7.22	2.22
Shepody	2001	41.6(3)	6.5(3)	15.1(3)	0.3(3)	0.0(4)	0.00	0.11	0.01	0.01	0.10	0.00
Shepody	4	35.2(12)	7.6(12)	11.9(12)	0.2(12)	2.3(17)	0.00	1.35	0.04	0.04	1.20	0.00
AF1753-16	2001	61.1(5)	7.3(2)	15.0(2)	8.8(2)	1.5(5)	0.00	0.02	0.00	1.00	0.00	1.00
B1409-2	2001	21.1(4)	1.5(3)	7.4(3)	1.3(3)	0.0(5)	0.00	2.00	0.00	0.00	0.00	0.00

Eastern Region Table 5. Continued.

-
- ¹Total defects may contain defects (common scab, rot, etc.) other than the four listed in this table.
²From left-to right, the scores are good, borderline, and poor.
³Out of field samples were fried three to twelve days after harvest in New Jersey, North Carolina and Virginia.
⁴Chips were reconditioned in Maine, Upstate New York, New Brunswick, and Ohio trials.
⁵From left-to-right, the scores are good, fair, and poor.

Eastern Region Table 6. Tuber and plant rating system for NE-184 potato variety trials.

TUBER RATING SYSTEM

Tuber Skin Color

1. Purple
2. Red
3. Pink
4. Dark Brown
5. Brown
6. Tan
7. Buff
8. White
9. Cream

Skin Texture

1. Part. russet
2. Heavy russet
3. Mod. russet
4. Light russet
5. Netted
6. Slight netting
7. Moderately smooth
8. Smooth
9. Very smooth

Tuber Shape

1. Round
2. Mostly round
3. Round to oblong
4. Mostly oblong
5. Oblong
6. Oblong to long
7. Mostly long
8. Long
9. Cylindrical

Eye Depth

1. Very deep
2. --
3. Deep
4. --
5. Intermediate
6. --
7. Shallow
8. --
9. Very shallow

Appearance

1. Very poor
2. --
3. Poor
4. --
5. Fair
6. --
7. Good
8. --
9. Excellent

PLANT RATING SYSTEM

Plant Type

1. Decumbent-poor canopy
2. Decumbent-fair canopy
3. Decumbent-good canopy
4. Spreading-poor canopy
5. Spreading-fair canopy
6. Spreading-good canopy
7. Upright-poor canopy
8. Upright-fair canopy
9. Upright-good canopy

Air Pollution

1. Dead
2. --
3. Moderate defoliation
4. --
5. Moderate injury
6. --
7. Mild injury
8. --
9. No symptoms

Plant size

1. Very small
2. +
3. Small
4. +
5. Medium
6. +
7. Large
8. +
9. Very large

Vine Maturity

1. Very early
2. Early
3. +
4. Medium early
5. Medium
6. Medium late
7. +
8. Late
9. Very late

Plant Appearance

1. Very poor
2. Poor
3. +
4. --
5. Fair
6. +
7. --
8. Good
9. Excellent

NORTH CENTRAL

IOWA – Bill Summers

MICHIGAN – Dave Douches

MINNESOTA – Christian Thill

NEBRASKA – Alex Pavlista

NORTH DAKOTA – Asunta Thompson

OHIO – Matt Kleinhenz

WISCONSIN – Jiming Jiang

ALBERTA – Dermot Lynch

MANITOBA – Dermot Lynch

ONTARIO – Vanessa Currie

USDA /ARS – Marty Glynn

NCPVT Trial - 2001

The North Central Potato Variety Trial (NCPVT) was conducted at 7 U.S. and 3 Canadian locations in 2001 (Tables 1, 2). Twenty three selections were entered: 4 each from Minnesota, Michigan, Wisconsin, and Alberta; 3 from North Dakota, 1 from the Western Region (WRCC-27), 2 from the Eastern Region, and 1 germplasm selection from the USDA/ARS (J. Helgeson) at Madison, WI (Table 1). Selections were compared to commercial cultivars Dark Red Norland and Red Pontiac for the 7 red-skinned entries; Russet Burbank and Russet Norkotah for the 5 russet-skinned entries; and Atlantic, NorValley, and Snowden for the 11 round-white chipping entries (Table 1).

General Trial and Cultural Information

Trials were arranged in a RCBD (randomized complete block design) with 4 replications of 20-hills per plot and seed spacing of 12" (unless otherwise noted). Standard cultural practices were observed at trial locations (Table 2). Individual breeding programs ship seed tubers to each trial location and Minnesota supplied G1 seed of the commercial cultivars used as controls. Seed for the Canadian locations was sent to the USDA/ARS Potato Research Worksite (USDA-PRW) for pick-up and redistribution within Canada by D. Lynch.

Data Collected

Data is grouped and presented by utilization classification i.e., red, russet/long, and round-white.

Table 1. Clonal entries, parentage, utilization.

Table 2. Locations, cooperators, and cultural information.

Table 3. Vine maturity.

Table 4. Total tuber yield (cwt/acre).

Table 5. Total US No. 1 yield (cwt/acre)

Table 6. Percent U.S. No. 1 yield.

Table 7. Yield (cwt/acre) of B size tubers (< 1 7/8 in.).

Table 8. Yield (cwt/acre) of A size tubers (> 1 7/8 in.).

Table 9. Yield (cwt/acre) of culled tubers.

Table 10. Percent tuber internal defects and percent free (F) of defects.

Table 11. Percent tuber external defects and percent free (F) of defects.

Table 12. Common scab severity and coverage.

Table 13. Disease reactions.

Table 14. Tuber specific gravity at harvest.

Table 15. Red color, chip and french fry processing quality (directly from the field).

Table 16. Merit ranking within each market class .

Table 17. Comments on clonal entries.

Report compiled by C. Thill, thill005@umn.edu

North Central Table 1. Clonal entries, parentage, market use, and characteristics.

Entry No.	Clone	Entered by	Market Use	Unique features	Pedigree		Characteristics		
					Female	Male	Skin Type	Flesh Color	Shape
RED									
1	MN 19525 R	MN	Fresh	Ex color	LA 1259	MN 25.80-6	Red	cream	Rnd Ov
2	Michigan Purple	MI	Fresh				Pur	white	Ov
3	ND 3196-1R	ND	Fresh		ND 2223-8R	ND 649-4R	Red	white	Rnd Ov
4	ND 5084-3R	ND	Fresh		ND 4058-2R	NDT9-1068-11R	Red	white	Rnd Ov
5	Dakota Rose	ND	Fresh		ND 2686-2R	Fontenot	Red	white	Ov
6	V 0299-4	AB	Fresh		ALA1	MP74-2Y	Red	white	Long Ov
7	CV 89023-2	AB	Fresh		AC82706-2	Cherry Red		white	Ov
8	D.R. Norland	Ck						white	Rnd Ov
9	R. Pontiac	Ck						cream	Rnd
RUSSET / LONG									
10	MN 18747 Rus	MN	FF and fresh	FF and fresh	ND 2264-7	MN 47.82-6	rus	cream	Ov
11	MSE 192-8 Rus	MI	Fresh russet	Fresh russet, Norkotah-type	A8163-8	R. Norkotah	rus	cream	Long Ov
12	V 0168-3	AB	Fresh	Fresh	ND A8694-3	Century Russet	rus	cream	Ov
13	W 1836-3 Rus	WI	FF and fresh	FF and fresh			rus	cream	Long Ov
14	A 90586-11	27	FF russet	FF russet			rus	cream	Long
15	R. Burbank	Ck	FF	FF			rus	cream	Long
16	R. Norkotah	Ck	Fresh	Fresh			rus	cream	Long Ov
ROUND-WHITE									
17	MN 19157	MN	Chips	Chips at 42 F, cold resis	MN 169-86-2	AC 92182 (MN 17873)	White	cream	Rnd Ov
18	MN 19315	MN	Chips	Chips at 42 F, cold resis	MN 644.87-5	MN 85892 (Composite)	White	cream	Ov
19	MSF 099-3	MI	Chips	Chips at 42 F, cold resis	Snowden	Chaleur	White	cream	Ov
20	MSF 373-8	MI	Chips / Fresh		MS702-80	NY88	White	cream	Rnd Ov
21	V 0123-25	AB	Chips	Storage chip	Niska	ND860-2	White	cream	Rnd Ov
22	W 1201	W1	Chips / Fresh	R - c. scab			White	cream	Rnd Ov
23	W 1386	W1	Chips / Fresh				White	cream	Rnd Ov
24	W 1431	W1	Chips	Cold-resis			White	cream	Rnd Ov
25	B0766-3	NE-184	Chips	MR - Vert, c. scab; R - GN race A	B0243-18	B9792-157	White	White	Rnd Ov
26	NY 112	NE-184	Chips (field)	R - c. scab; GN race A	Atlantic	NTQ 155-3	White	White	Ov
27	Atlantic	Ck	Chips	Field & early storage, high SpGr			White	cream	Rnd Ov
28	NorValley	Ck	Chips	Storage chip			White	cream	Rnd Ov
29	Snowden	Ck	Chips	Storage chip	Wischip	B 5141-6	White	cream	Rnd Ov
30	C 75-5-297	USDA	Breeding line	J. Helgeson (breeding line s. rot resis)			White	cream	Rnd Ov

North Central Table 2. Locations, Cooperators, and Cultural Information.

No	Locations / Cooperator	Soil Type	Irrigation	Dates			Days to		N - P - K			Cultural Information		
				Planting	Harvest	Kill	Harv	Fertilizer (lbs./A)	Herbicides	Insecticides	Fungicides	Other		
1	IOWA (IA) Muscatine, IA Dr. Bill Summers	Entic Hapludolls Mixed Mesic Loamy Sand	Overhead 1"/wk as needed	04/24/01	08/03/01	none	101	ppi, 250#, 0-0-60 ppi, 400#, 13-13-13 side, 156#, 32-0-0 side, 156#, 32-0-0	Dual II [1.25pt]	Pounce [4x] [6oz/A]	Bravo [1x] Quadris [1X]			
2	MICHIGAN (MI) Montcalm Research Farm Enfican, MI	McBride sandy loam	Overhead as needed	05/01/01	09/05/01	114	128	180 - 60 - 140	Dual Sencor	Admire	chlorothalinal 5-day schedule	fumigated		
3	MINNESOTA (MN) UM-Becker Res Farm Becker, MN	Hubbard sand	Sprink.	05/11/01	10/19/01	120	130	pre-plant, 200#, 0-0-60 pre-plant, 275#, 0-0-27 plant, 8-10-30 side, 250#, 34-0-0, 2x	Dual + Lorox DF	Admire Sevin	Bravo WS Quadris	Disease run(s) from separate trials.		
4	NEBRASKA (NE) PREC Scootsbluff, NE	Silt Loam pH 7.9 OM 1.7%	Sprink.	05/09/01	09/22/01	133	136	210 lb N 110 lb P 55 S no K	Turbo	Admire	Tops M Z Bravo Zn & Quadris	Dry & hot season		
5	NORTH DAKOTA (ND) UM-Crookston Res Farm Crookston, MN	Wheatville Prairie fine sandy loam	dryland	05/16/01	10/02/01		139	36-4-76 60-0-0 0-46-0	Dual 1.5 pt Prowl 1.5 pt Poast 1 pt. Poast 1 pt.	Admire 1.3 oz. Fulfill 2.75 oz Fulfill 2.75 oz.	Dithane - Champ Curzate - Bravo Flouronil Equus	Data from 1 rep water damage (except maturity)		
6	OHIO (OH) OARDC Wooster, OH	Silt loam	dryland	06/11/01	10/01/01	94	110	preplant 600#, 10-20-20 plant, 600#, 10-20-20	Dual II + Sencor DF	Admire Thiodan Ausana Dithane	Bravo	2000 soybean 2000 winter wheat		
7	WISCONSIN (WI) UW-Hancock Res. Farm Hancock, WI	Plainfield loamy sand	Sprink.	04/24/01	09/10/01	121 (Reglone)	140	pre-plant,250# 0-0-60 plant,600#,6-24-24 side,350#,21-0-0 side, 375#,34-0-0	Linex 4L Poast	Admire Spintor 2SC	Bravo ZN Quadris Curzate 60 DF			
8	Dr. Jiming Jiang ALBERTA (AB)	Silt loam	Solid set 17 h	05/11/01	09/26/01	118 (Reglone)	138	pre-plant, 150# 34-5-0-0	Eptam 8E Sencor	Decis Monitor	Ridomil Gold Bravo 500 Dithane Rainshield			
9	Brooks, AB, Canada Dr. Dermot Lynch MANITOBA (MB)	Hochfeld fine sandy loam	Pivot - 50mm Rain-155mm	05/10/01	09/18/01	125 (Reglone)	132	pre-plant 165# N pre-plant 10# P	Sencor Prism Poast Roundup	Thiodan Admire	Bravo 500 Quadris			
10	Morden, MB, Canada Dr. Dermot Lynch ONTARIO (ON) Cambridge Res Farm Cambridge, ON, Canada Vanessa Currie	Fox sandy loam	5 in, June27 July5,11,25 Aug1,9,14	05/10/01	09/20/01	119	133	800 ,lbs/ac 16-8-8 with planter	Pre-emerg w/ Linuron + dual Reglone	Admire (furrow)	Bravo Curzate & Mancozeb Tuberseal (planting) Bravo & Ripcord	Extremely hot and dry during July & August		

North Central Table 3. Vine maturity.

No.	Clone	AB	IA	MB	MI	MN	NE	ON	WI	ND	OH
Irrigated											
1 (early) - 5 (late), 1 (early) - 9 (late), or descriptors											
RED											
1	MN 19525 R	2.3		4.5	1.9	mid	mid-late	mid	3.2	2.5	7
2	Michigan Purple	3.4		4.0	1.8	mid	mid	mid	3.4	2.8	7
3	ND 3196-1R	3.6	2.0	2.0	1.1	mid	v early	mid	2.8	2.5	6
4	ND 5084-3R	3.8		5.0	3.8	late	v late	full	4.2	3.8	9
5	Dakota Rose	3.1		3.0	1.3	mid	early	mid	2.4		4
6	V 0299-4	4.1		3.5	1.3	late	late	full	3.3	2.5	7
7	CV 89023-2	3.4		3.0	1.4	mid	early	v. late	3.0	2.5	7
8	D.R. Norland	3.0	1.0	2.0	1.1	early	v early	early	2.4	2.0	4
9	R. Pontiac	4.0	3.0	5.0	2.8	v. late	v late	full	3.8	3.8	7
RUSSET / LONG											
10	MN 18747 Rus	2.9	2.0	2.5	1.4	early	v early	mid	2.3	2.5	4
11	MSE 192-8 Rus				1.3	mid	mid		2.8	4.3	6
12	V 0168-3	3.3	2.0	1.0	1.0	early	v early	early	1.8	2.8	2
13	W 1836-3 Rus	3.5		4.5	3.1	late	v late	full	3.9	4.8	9
14	A 90586-11	3.4		5.0	3.3	v. late	v late		3.8	4.0	7
15	R. Burbank	4.0	5.0	5.0	2.2	v. late	v late	v. late	3.8	4.0	5
16	R. Norkotah	3.3	3.0	3.0	1.2	mid	early	mid-late	2.1	3.0	2
ROUND-WHITE											
17	MN 19157	3.0		3.0	1.6	mid	early	mid	3.1	2.8	5
18	MN 19315	3.4		1.0	1.3	mid	early	mid	2.7	3.3	6
19	MSF 099-3	3.3		4.0	2.4	late	late	full	3.5	3.5	5
20	MSF 373-8	4.0	3.0	5.0	3.3	v. late	v late	full	3.6	4.8	9
21	V 0123-25	3.1		2.0	1.1	early	v early	mid	2.4	2.3	3
22	W 1201	3.8		4.5	3.0	late	v late	full	3.7	3.3	
23	W 1386	3.6	3.0	4.0	3.3	late	late	mid	3.3	3.8	7
24	W 1431	3.9	4.0	5.0	2.8	late	late	mid	3.3	2.8	9
25	B0766-3		3.0		3.0	late	v late		3.6	3.0	
26	NY 112		3.0		3.3	late	v late		3.2	3.5	
27	Atlantic	4.3	1.0	4.0	2.7	mid	mid	mid	3.3	3.8	8
28	NorValley	3.3	2.0	3.0	2.4	mid	mid	mid	3.1	3.0	6
29	Snowden	4.3	4.0	4.0	2.3	late	late	full	3.6	3.8	6
30	C 75-5-297	5.0		5.0		v. late	v late	mid-late	4.9	4.5	9

North Central Table 4. Total yield (cwt/acre).

No.	Clone	AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank
RED															
		Irrigated							Dryland						
1	MN 19525 R	239	263	338	434	629	409	223	521	382	300	306	303	366	7
2	Michigan Purple	524	388	433	415	792	462	299	552	483	238	307	273	441	3
3	ND 3196-1R	406	132	365	369	544	404	244	405	359	219	228	224	332	9
4	ND 5084-3R	557	276	626	570	585	489	343	748	524	266	481	374	494	1
5	Dakota Rose	525	84	426	415	484	423	275	400	379		212	212	360	8
6	V 0299-4	471	163	490	520	536	365	380	470	424	274	293	284	396	5
7	CV 89023-2	409	205	447	436	851	455	372	487	458	215	354	285	423	4
8	D.R. Norland	565	315	368	491	448	455	316	477	429	178	200	189	381	6
9	R. Pontiac	562	250	607	553	699	521	479	642	539	296	94	195	470	2
RUSSET / LONG															
10	MN 18747 Rus	505	214	300	405	420	358	327	440	371	257	128	193	335	6
11	MSE 192-8 Rus		139		307	252	353		371	285	98	247	173	253	7
12	V 0168-3	504	236	305	361	519	489	368	406	399	237	237	237	366	4
13	W 1836-3 Rus	396	249	415	447	609	382	387	658	443	218	276	247	404	2
14	A 90586-11	387	288	360	472	663	445		561	454	276	216	246	408	1
15	R. Burbank	467	266	413	432	583	365	303	451	410	144	121	133	355	5
16	R. Norkotah	567	290	381	344	635	462	374	408	433	291	180	236	393	3
ROUND-WHITE															
17	MN 19157	451	229	362	454	366	375	265	389	361	264	106	185	326	13
18	MN 19315	378	222	292	338	464	238	324	390	331	248	286	267	318	14
19	MSF 099-3	404	226	331	294	595	423	347	488	389	190	107	149	341	11
20	MSF 373-8	495	295	439	424	632	384	337	593	450	144	256	200	400	4
21	V 0123-25	460	249	363	405	657	316	357	376	398	253	170	212	361	10
22	W 1201	399	238	406	483	535	372	298	599	416	203		203	393	5
23	W 1386	425	326	304	496	661	511	412	604	467	225	176	201	414	2
24	W 1431	367	370	301	384	673	402	363	589	431	248	194	221	389	7
25	B0766-3		219		457	587	406		526	439	158		158	392	6
26	NY 112		352		503	723	440		639	531	356		356	502	1
27	Atlantic	505	266	396	384	555	365	402	525	425	319	152	236	387	8
28	NorValley	388	312	429	499	559	462	392	541	448	333	187	260	410	3
29	Snowden	466	241	416	370	504	355	329	584	408	269	81	175	361	9
30	C 75-5-297	365	264	400		493	212	360	550	378	161	226	194	337	12
Grand mean		451	252	397	430	575	403	341	513	421	237	216	227	384	

North Central Table 5. Total US No. 1 yield (cwt/acre).

No.	Clone	AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank
RED		Irrigated										Dryland			
1	MN 19525 R	189	170	294	350	552	386	169	469	323	234	240	237	305	6
2	Michigan Purple	491	169	374	366	617	375	252	497	393	194	189	192	352	3
3	ND 3196-1R	356	83	334	327	450	335	196	354	304	199	170	185	280	9
4	ND 5084-3R	485	179	496	516	403	456	231	655	428	182	350	266	395	1
5	Dakota Rose	478	60	391	352	181	378	304	364	313		149	149	295	8
6	V 0299-4	310	95	409	374	474	278	289	373	325	231	206	219	304	7
7	CV 89023-2	313	100	385	335	706	303	311	398	356	154	218	186	322	5
8	D.R. Norland	526	220	347	454	394	416	282	427	383	154	158	156	338	4
9	R. Pontiac	503	112	386	468	591	496	373	518	431	190	60	125	370	2
RUSSET / LONG															
10	MN 18747 Rus	356	173	279	307	378	34	298	395	278	209	84	147	251	5
11	MSE 192-8 Rus		65		189	238	196		297	197	59	125	92	167	7
12	V 0168-3	460	206	267	278	504	395	345	359	352	181	214	198	321	2
13	W 1836-3 Rus	330	103	366	361	587	302	333	511	362	166	165	166	322	1
14	A 90586-11	218	162	284	376	563	303		391	328	226	108	167	292	4
15	R. Burbank	314	42	338	256	459	198	308	326	280	51	40	46	233	6
16	R. Norkotah	489	229	337	217	625	303	171	357	341	261	132	197	312	3
ROUND-WHITE															
17	MN 19157	330	159	290	298	324	218	201	324	268	210	82	146	244	12
18	MN 19315	158	200	179	146	379	162	186	214	203	146	190	168	196	14
19	MSF 099-3	323	114	297	237	557	357	295	402	323	149	66	108	280	10
20	MSF 373-8	387	236	312	394	626	320	255	537	383	129	184	157	338	5
21	V 0123-25	345	163	276	223	443	197	322	282	281	224	109	167	258	11
22	W 1201	289	210	359	429	488	298	234	535	355	182		182	336	6
23	W 1386	314	267	249	446	590	458	335	512	396	200	128	164	350	3
24	W 1431	288	305	264	327	647	342	318	525	377	200	135	168	335	7
25	B0766-3		180		419	576	350		486	402	155		155	361	2
26	NY 112		313		459	713	383		571	488	335		335	462	1
27	Atlantic		226	358	335	507	241	274	449	349	283	113	198	319	8
28	NorValley	254	256	371	396	525	310	343	480	367	307	147	227	339	4
29	Snowden	342	159	362	277	486	237	324	525	339	251	61	156	302	9
30	C 75-5-297	242	72	299		400	172	261	393	263	54	134	94	225	13
Grand mean		352	168	330	342	499	307	277	431	340	190	147	172	307	

North Central Table 6. Percent U.S. No. 1 yield.

No.	Clone	AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank
RED															
		Irrigated							Dryland						
		74	65	87	81	88	94	76	90	82	78	78	78	81	3
1	MN 19525 R														
2	Michigan Purple	93	44	86	88	78	81	84	90	81	82	62	72	79	6
3	ND 3196-1R	87	63	92	88	83	83	81	87	83	91	75	83	83	2
4	ND 5084-3R	87	65	79	91	69	93	84	88	82	68	73	71	80	4
5	Dakota Rose	91	71	92	85	37	89	89	91	81		70	70	79	5
6	V 0299-4	63	59	83	72	88	76	76	79	74	84	70	77	75	7
7	CV 89023-2	76	49	86	77	83	67	84	82	75	72	62	67	74	9
8	D.R. Norland	93	70	94	93	88	92	89	89	89	87	79	83	87	1
9	R. Pontiac	89	45	64	84	85	95	78	81	78	64	64	64	75	8
<u>RUSSET / LONG</u>															
10	MN 18747 Rus	71	81	93	76	90	9	91	90	75	81	66	73	75	4
11	MSE 192-8 Rus		47		61	94	56		80	68	60	51	55	64	6
12	V 0168-3	91	87	88	77	97	81	94	88	88	76	90	83	87	1
13	W 1836-3 Rus	83	41	88	81	96	79	86	78	79	76	60	68	77	3
14	A 90586-11	56	56	79	80	85	68		70	71	82	50	66	70	5
15	R. Burbank	68	16	82	59	79	54	83	72	64	35	33	34	58	7
16	R. Norkotah	86	79	89	62	98	65	57	88	78	90	73	82	79	2
<u>ROUND-WHITE</u>															
17	MN 19157	73	70	80	66	88	58	76	83	74	80	77	78	75	11
18	MN 19315	41	90	61	43	82	68	57	55	62	59	66	63	62	14
19	MSF 099-3	80	50	90	81	94	84	85	82	81	78	62	70	79	10
20	MSF 373-8	79	80	71	93	99	83	75	91	84	90	72	81	83	6
21	V 0123-25	76	66	78	55	67	62	90	75	71	89	64	76	72	12
22	W 1201	73	88	89	89	91	80	78	89	85	90		90	85	3
23	W 1386	75	82	82	90	89	90	81	85	84	89	73	81	84	5
24	W 1431	79	82	88	85	96	85	88	89	86	81	70	75	84	4
25	B0766-3		82		92	98	86		92	90	98		98	92	1
26	NY 112		89		91	99	87		89	91	94		94	91	2
27	Atlantic	79	85	91	87	91	66	76	86	83	89	74	82	82	7
28	NorValley	66	82	87	79	94	67	85	89	81	92	79	85	82	8
29	Snowden	74	66	87	75	97	67	83	90	80	93	75	84	81	9
30	C 75-5-297	66	27	75		81	81	79	72	69	34	59	46	64	13
Grand mean		77	66	84	79	87	75	81	84	79	79	68	74	78	

North Central Table 7. Yield (cwt/acre) of B size tubers (< 1 7/8 in.).

No.	Clone	AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank
RED															
		Irrigated							Dryland						
1	MN 19525 R	ND	74	40	82	43	15	53	22	47	62	36	49	48	3
2	Michigan Purple	ND	42	15	33	13	5	23	25	22	15	9	12	20	9
3	ND 3196-IR	ND	19	26	41	12	15	47	21	26	13	13	13	23	7
4	ND 5084-3R	ND	53	23	46	46	24	44	40	39	70	39	55	43	4
5	Dakota Rose	ND	60	20	46	15	29	20	17	30		15	15	28	6
6	V 0299-4	ND	95	80	140	27	75	92	77	84	43	52	48	76	1
7	CV 89023-2	ND	78	62	100	77	56	59	51	69	52	42	47	64	2
8	D.R. Norland	ND	42	22	34	26	12	27	18	26	11	11	11	23	8
9	R. Pontiac	ND	30	13	50	50	15	21	37	31	36	10	23	29	5
<u>RUSSET / LONG</u>															
10	MN 18747 Rus	ND	19	22	89	11	22	29	25	31	33	5	19	28	6
11	MSE 192-8 Rus	ND	63		114	14	15		60	53	7	25	16	43	5
12	V 0168-3	ND	18	29	72	16	7	23	24	27	47	12	30	28	7
13	W 1836-3 Rus	ND	135	28	85	22	22	54	62	58	23	63	43	55	2
14	A 90586-11	ND	89	75	76	20	24		50	56	19	24	22	47	4
15	R. Burbank	ND	70	41	155	26	24	65	69	64	61	23	42	59	1
16	R. Norkotah	ND	46	44	134	11	17	132	32	59	15	24	20	50	3
<u>ROUND-WHITE</u>															
17	MN 19157	ND	55	68	150	42	27	61	28	62	49	12	31	55	4
18	MN 19315	ND	15	113	189	85	58	139	126	103	100	57	79	98	1
19	MSF 099-3	ND	30	34	35	17	27	29	34	29	40	9	25	28	9
20	MSF 373-8	ND	24	19	17	6	12	12	10	14	8	8	8	13	14
21	V 0123-25	ND	80	36	170	43	27	36	67	66	22	18	20	56	3
22	W 1201	ND	18	18	48	18	10	42	26	26	7		7	23	11
23	W 1386	ND	40	54	40	31	34	38	39	39	25	13	19	35	7
24	W 1431	ND	52	27	54	19	22	36	24	33	44	16	30	33	8
25	B0766-3	ND	36		37	11	17		14	23	4		4	20	13
26	NY 112	ND	22		40	11	24		18	23	17		17	22	12
27	Atlantic	ND	20	29	42	12	10	87	19	31	12	8	10	27	10
28	NorValley	ND	41	56	100	34	19	43	29	46	23	15	19	40	5
29	Snowden	ND	59	46	89	17	17	58	23	44	10	9	10	36	6
30	C 75-5-297	ND	142	101		94	29	62	108	89	105	62	84	88	2
Grand mean		52	42	80	80	29	24	51	40	45	34	23	27	41	

North Central Table 8. Yield (cwt/acre) of A size tubers (> 1 7/8 in.).

No.	Clone	AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank
		Irrigated													
		Dryland													
		RED													
1	MN 19525 R	ND	170	297	339	586	394	169	469	346	234	240	237	322	6
2	Michigan Purple	ND	169	418	291	779	457	252	497	409	194	189	192	361	3
3	ND 3196-1R	ND	83	338	314	533	389	196	354	315	199	170	185	286	9
4	ND 5084-3R	ND	179	603	422	539	465	231	655	442	182	350	266	403	1
5	Dakota Rose	ND	60	406	336	469	394	304	364	333		149	149	310	7
6	V 0299-4	ND	95	409	374	508	290	289	373	334	231	206	219	308	8
7	CV 89023-2	ND	100	385	323	774	399	311	398	384	154	218	186	340	4
8	D.R. Norland	ND	220	347	451	422	443	282	427	370	154	158	156	323	5
9	R. Pontiac	ND	112	594	420	649	506	373	518	453	190	60	125	380	2
		RUSSET / LONG													
10	MN 18747 Rus	ND	173	279	300	409	336	298	395	313	209	84	147	276	5
11	MSE 192-8 Rus	ND	65		175	238	338		297	223	59	125	92	185	7
12	V 0168-3	ND	206	276	256	504	482	345	359	347	150	214	182	310	3
13	W 1836-3 Rus	ND	103	387	344	587	360	333	511	375	166	165	166	328	1
14	A 90586-11	ND	162	284	331	644	421		391	372	226	108	167	321	2
15	R. Burbank	ND	42	372	250	557	341	308	326	314	51	40	46	254	6
16	R. Norkotah	ND	229	337	210	625	445	171	357	339	246	132	189	306	4
		ROUND-WHITE													
17	MN 19157	ND	159	294	295	324	248	201	324	264	210	82	146	237	12
18	MN 19315	ND	200	179	145	379	180	186	214	212	146	190	168	202	14
19	MSF 099-3	ND	114	297	200	578	397	295	402	326	142	66	104	277	11
20	MSF 373-8	ND	236	421	229	626	372	255	537	382	110	184	147	330	7
21	V 0123-25	ND	163	326	219	614	290	322	282	317	216	109	163	282	10
22	W 1201	ND	210	388	401	517	363	234	535	378	171		171	352	5
23	W 1386	ND	267	251	387	630	477	335	512	408	200	128	164	354	4
24	W 1431	ND	305	274	323	654	380	318	525	397	197	135	166	346	6
25	B0766-3	ND	180		384	576	389		486	403	122		122	356	3
26	NY 112	ND	313		407	713	416		571	484	335		335	459	1
27	Atlantic	ND	226	367	281	544	355	274	449	356	269	113	191	320	8
28	NorValley	ND	256	373	380	525	443	343	480	400	298	147	223	361	2
29	Snowden	ND	159	370	263	486	338	324	525	352	243	61	152	308	9
30	C 75-5-297	ND	72	299		400	183	261	393	268	54	134	94	225	13
Grand mean			168	354	312	546	376	277	431	354	185	147	168	314	

North Central Table 9. Yield (cwt/acre) of culled tubers.

No.	Clone	AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank
		Irrigated						Dryland							
RED		ND	19	4	4	34	8	53	30	22	4	29	17	21	9
1	MN 19525 R	ND	176	44	12	163	82	47	30	79	30	107	69	77	2
2	Michigan Purple	ND	30	4	0	82	54	47	30	35	7	44	26	33	6
3	ND 3196-1R	ND	44	107	6	137	9	44	53	57	70	92	81	62	4
4	ND 5084-3R	ND	72	15	17	288	16	39	19	66		47	47	64	3
5	Dakota Rose	ND	32	0	5	35	12	92	20	28	43	34	39	30	7
6	V 0299-4	ND	27	0	0	68	96	61	38	41	9	92	51	43	5
7	CV 89023-2	ND	53	0	5	29	27	33	32	26	13	31	22	25	8
8	D.R. Norland	ND	107	208	39	58	10	106	86	88	69	23	46	78	1
9	R. Pontiac	ND	21	0	8	31	302	29	20	59	15	38	27	52	3
RUSSET / LONG		ND	11		6	0	142		15	35	33	96	65	43	4
10	MN 18747 Rus	ND	12	9	11	0	87	23	23	24	47	10	29	25	7
11	MSE 192-8 Rus	ND	11	21	4	0	58	54	85	33	29	47	38	34	6
12	V 0168-3	ND	36	0	24	81	118		119	63	31	84	58	62	2
13	W 1836-3 Rus	ND	154	35	22	98	143	65	56	82	32	57	45	73	1
14	A 90586-11	ND	15	0		0	142	132	18	51	15	24	20	43	5
15	R. Burbank	ND													
16	R. Norkotah	ND	15	4	0	0	30	64	36	21	4	12	8	18	12
ROUND-WHITE		ND	8	0	5	0	18	139	50	31	2	39	21	29	8
17	MN 19157	ND	82	0	0	21	40	52	51	35	1	32	17	31	6
18	MN 19315	ND	34	108	23	0	52	83	46	50	7	65	36	47	2
19	MSF 099-3	ND	5	51	13	171	93	36	27	56	7	43	25	49	1
20	MSF 373-8	ND	10	29	12	29	65	64	38	35	14		14	33	5
21	V 0123-25	ND	19	2	5	40	19	77	53	31	0	35	18	28	9
22	W 1201	ND	14	10	10	7	38	45	39	23	0	43	22	23	11
23	W 1386	ND	2		4	0	39		25	14	0		0	12	14
24	W 1431	ND	17		0	0	33		51	20	4		4	17	13
25	B0766-3	ND	20	9	0	36	114	87	56	46	25	31	28	42	3
26	NY 112	ND	14	2	8	0	133	59	33	35	23	25	24	33	4
27	Atlantic	ND	23	8	5	0	101	68	36	34	8	12	10	29	7
28	NorValley	ND	50	0	4	0	11	68	49	26	3	31	17	24	10
29	Snowden	ND													
30	C 75-5-297	ND	38	25	9	47	70	64	42	42	19	45	31	39	
Grand mean															

North Central Table 10. Percent tuber internal defects and percent free (F) of defects.

No.	Clone	AB						IA						MB						MI						MN							
		HH	IN	VD	BC	F	HH	IN	VD	BC	F	HH	IN	VD	BC	F	HH	IN	VD	BC	F	HH	IN	VD	BC	F	HH	IN	VD	BC	F		
HH - Hollow Heart, IN - Internal Necrosis, VD - Vascular Discoloration, BC - Brown Center.																																	
RED																																	
1	MN 19525 R			5		95					100	2	4		1	93				20		80										100	
2	Michigan Purple			13		87			20		80	1				99				28		72			10	3						87	
3	ND 3196-1R			15		85					100	2			4	94				8	6	86	13	7								80	
4	ND 5084-3R					100					90	1				99	2			8		90			7							93	
5	Dakota Rose	4	17			79			10		90					100				10	2	88			7							93	
6	V 0299-4			22		78			10		80		1			99				12		88			10	7						83	
7	CV 89023-2			27		73					100					100				18		82			10							90	
8	D.R. Norland			8		92					100	2			1	97				18		82			10							90	
9	R. Pontiac					100			20	10	70	12		2	1	85				2	14	84	10		20							70	
RUSSET / LONG																																	
10	MN 18747 Rus			12		88				20	80					100				14		86			7							93	
11	MSE 192-8 Rus										100						2					98			3							97	
12	V 0168-3	1	12			87			10		90					100				4		96			10							90	
13	W 1836-3 Rus					100				20	80	18				82				2		98		3			3					93	
14	A 90586-11	11	3			86	10				90	5				95				2		98	20		7							73	
15	R. Burbank	1			1	98			10		90	36		1	1	62				26		74	13	3								83	
16	R. Norkotah			1		99			10		90	21			1	78				22		78			7							93	
ROUND-WHITE																																	
17	MN 19157	1	17			82					100	11				89				14		86			10							90	
18	MN 19315			1		90				30	70				2	98	2	4		14		80	3		3							93	
19	MSF 099-3	3				97		20		20	60	6	1			93				4	4	92	17		3							80	
20	MSF 373-8	1			2	97					100	6				94				2		98										100	
21	V 0123-25			3		97					100	2	3			95				16		84			13							87	
22	W 1201			3		97				30	70	4	1			95				34		66	10		7							83	
23	W 1386	1	6			93		10			90					100				10		90	10	3	7							80	
24	W 1431	1				99		20			80	14			1	85				8		92	37									63	
25	B0766-3										100									20		80	3		7							90	
26	NY 112							40			60						4			8		88	3		3							93	
27	Atlantic	1	4			96		30		20	50	11				89		6		4		90	33		7							60	
28	NorValley			7		93				10	90	1				99				12		88										100	
29	Snowden	1	2		1	96		10		20	70	2				98				22		78	7		7							87	
30	C 75-5-297			2	21	77		50			50	6				94																	90

North Central Table 10. Continued.

North Central Table 10. Continued.																					
No.	Clone	NE				ON				WI				ND				OH			
		HH	IN	VD	BC	F	HH	IN	VD	BC	F	HH	IN	VD	BC	F	HH	IN	VD	BC	F
HH - Hollow Heart, IN - Internal Necrosis, VD - Vascular Discoloration, BC - Brown Center.																					
RED																					
1	MN 19525 R					100					100	2				4					100
2	Michigan Purple					100					100		1			6					70
3	ND 3196-1R					100			1		99	6				1					100
4	ND 5084-3R			2		98			1		99		25			1					100
5	Dakota Rose					100			1		99		1			4					-
6	V 0299-4					100					100		5			1					100
7	CV 89023-2					100			1		99		2			1			10		90
8	D.R. Norland					100					100		5							30	70
9	R. Pontiac					100					100		2			1					100
RUSSET / LONG																					
10	MN 18747 Rus					100					100		2			4					100
11	MSE 192-8 Rus	4				96						2	2			1					100
12	V 0168-3		4			96					100	1				1		10			90
13	W 1836-3 Rus					100			2		98	2	4			2		10			90
14	A 90586-11					100					100	1				5				10	90
15	R. Burbank	4				96			1		99	1	4			2					100
16	R. Norkotah					100					100					8		10			90
ROUND-WHITE																					
17	MN 19157					100					100	1	5			6				4	60
18	MN 19315					100					100	3	4								100
19	MSF 099-3					100					100	3	8			1		30			70
20	MSF 373-8	2				98	1	1	1	2	95	2						20			80
21	V 0123-25		18	4		78					100	2	5			8					100
22	W 1201	2				98			1		99	2	2			3		10			90
23	W 1386	2				98					100	1	4			15					100
24	W 1431		4	4		92					100		2					50			50
25	B0766-3					100					100	1				1		10			90
26	NY 112					100					100		13			6					100
27	Atlantic					100					100	6	9					30			70
28	NorValley		12	4		84					100		1			6		10			90
29	Snowden					100					100		8			2					100
30	C 75-5-297	4		2		94			1		99	3	4			2		10			90

North Central Table 11. Percent external defects and percent free (F) of defects.

No.	Clone	AB				IA				MB				MI						
		Sc	GC	2Gr	Gm	Rot	F	Sc	GC	2Gr	Gm	Rot	F	Sc	GC	2Gr	Gm	Rot	F	
RED																				
1	MN 19525 R						100	70					30	32					68	4
2	Michigan Purple						100	10		20			70	22				10	68	10
3	ND 3196-1R			1			99	90	10				10	29	4				67	18
4	ND 5084-3R		1				99	100					0	7			3	4	86	24
5	Dakota Rose						100	90					10	22					78	18
6	V 0299-4						100	50					50	26					74	26
7	CV 89023-2			1			99			10			90	25					75	32
8	D.R. Norland						100	70					30	24					76	2
9	R. Pontiac						100	40		10			50	31	6	1			62	48
RUSSET / LONG																				
10	MN 18747 Rus			2			98	30					70	22	1			5	72	22
11	MSE 192-8 Rus						100						100						99	2
12	V 0168-3						100						100		1				99	74
13	W 1836-3 Rus						100						100		5				95	
14	A 90586-11			1	2		97	60					40	25	4				71	30
15	R. Burbank			1		1	99					60	40		5				95	28
16	R. Norkotah			1	1		98						10	90		1			99	18
ROUND-WHITE																				
17	MN 19157		1		1		98	10					90	13		1			86	22
18	MN 19315			1			99	10		10			80	26					74	68
19	MSF 099-3			1			99	50				10	40						100	46
20	MSF 373-8			1			99	90					10	13		2			85	28
21	V 0123-25			1			99	10					90	10					90	38
22	W 1201		1		2		97	70		30			30	24	4	1			71	12
23	W 1386			1	1		98						100	16	1	2		2	79	14
24	W 1431			1	1	1	98						100	7	2				91	44
25	B0766-3												100							14
26	NY 112							20					80							14
27	Atlantic			1	1		98	20					80	11					89	34
28	NorValley			2			98						100	25					75	28
29	Snowden			1	1		99	20					80						100	20
30	C 75-5-297			1			99			10			90	6	2				92	

North Central Table 11. Continued.

No. Clone		NE					ON					WI								
		Sc	GC	2Gr	Gm	Rot	F	Sc	GC	2Gr	Gm	Rot	F	Sc	GC	2Gr	Gm	Rot	F	
RED		Sc - Scab, GC - Growth Crack, 2Gr - Second Growth, Gm - Green, Rot - Tuber rot																		
1	MN 19525 R				2	98	80	8	10	10							5		87	
2	Michigan Purple	2	16			82	98		2							3	2		94	
3	ND 3196-1R	2	12			86	99	5	1							2	5	1	86	
4	ND 5084-3R	2				98	98	9	1	1						2	4	1	84	
5	Dakota Rose	4				96	98	11	2							1	2	1	85	
6	V 0299-4		4			96	100	3								1	2	2	93	
7	CV 89023-2	2	22			76	98	6	2							5	5	1	83	
8	D.R. Norland	6				94	95	2	5							1	7	1	90	
9	R. Pontiac	2				98	96	9	2		2					8	4	1	78	
RUSSET / LONG																				
10	MN 18747 Rus	8	80	14		10	100									3	2		95	
11	MSE 192-8 Rus	10	34	2		58										5			94	
12	V 0168-3	2	18			82	100									2	2		95	
13	W 1836-3 Rus	2	10	2		84	100	5								7	3	4	82	
14	A 90586-11	4	12	14		72		6								1	8	6	78	
15	R. Burbank	8	40	4		58	88		2	10						2	1	2	87	
16	R. Norkotah	2	30			68	100									1	1	1	97	
ROUND-WHITE																				
17	MN 19157	10	2	4		88	100	8								3	1	6	82	
18	MN 19315	10		8		90	100	8								1	9	2	80	
19	MSF 099-3	6			4	90	99	6	1							4	4	1	85	
20	MSF 373-8				8	86	6	8	5	1						2	5	3	82	
21	V 0123-25	6	6	14	2	68	100	4								4	4		89	
22	W 1201			10	8	82	100	4								2	3	2	89	
23	W 1386		2	2	2	96	100	3								3	5	2	87	
24	W 1431	4	2	2	10	90	100									1	4	1	94	
25	B0766-3	4	2	2	4	90		6									2	1	90	
26	NY 112		6		2	92		2								2		1	92	
27	Atlantic	28			4	68		5								1	4	2	92	
28	NorValley		2	18	8	70	98	4								4	6	2	83	
29	Snowden	20		2	4	70	100	2								1	3	2	93	
30	C 75-5-297		4	2		94	100	5								8	1	1	85	

North Central Table 12. Common scab severity and coverage.

No.	Clone	AB		IA		MB		MI		MN		NE		ON		WI		ND	
		Sv	Cv	Sv	Cv	Sv	Cv	Sv	Cv	Sv	Cv	Sv	Cv	Sv	Cv	Sv	Cv	Sv	Cv
		Sv = Severity 1 (small, superficial) - 5 (Very large pustules, Deep holes); Cv = Coverage T (trace), 1 (1-20%) - 5 (80-100%); MI, NE, WI 1-5 severe.																	
RED																			
1	MN 19525 R	0	0	1	1	2	1	0.0		2	4			1	T	5.0	2.0	1	T
2	Michigan Purple	0	0	1	T	1	1	2.0		5	3			1	T	0.0	0.0	1	T
3	ND 3196-1R	0	0	2	4	2	1	-		5	3			1	T	2.0	1.0	1	T
4	ND 5084-3R	0	0	1	T	1	T	0.7		3	2			1	T	4.0	2.0	1	T
5	Dakota Rose	0	0	1	2	2	1	-		1	2			1	T	4.0	2.0	-	-
6	V 0299-4	0	0	1	T	2	1	2.0		4	3			1	1	2.0	1.0	1	T
7	CV 89023-2	0	0	0	0	2	1	1.0		5	4			1	T	4.0	1.5	1	T
8	D.R. Norland	0	0	1	3	1	1	-		4	2			1	1	2.0	1.5	1	T
9	R. Pontiac	0	0	1	4	2	2	2.0		5	4			1	T	5.0	1.5	1	T
RUSSET / LONG																			
10	MN 18747 Rus	0	0	1	T	1	T	1.0		4	2			1	1	0.0	0.0	1	T
11	MSE 192-8 Rus			0	0			0.0		4	2					0.0	0.0	0	0
12	V 0168-3	0	0	0	0	0	0	2.3		5	3			1	T	0.0	0.0	0	0
13	W 1836-3 Rus	0	0	0	0	0	0	0.0		0	0			1	T	2.0	1.5	0	0
14	A 90586-11	0	0	2	5	1	T	2.5		4	2					3.0	1.0	0	0
15	R. Burbank	0	0	0	0	0	0	0.7		5	2			1	T	0.0	0.0	0	0
16	R. Norkotah	0	0	0	0	0	0	0.0		2	3			1	T	0.0	0.5	0	0
ROUND-WHITE																			
17	MN 19157	0	0	1	T	1	T	-		3	3			1	T	4.0	2.0	1	T
18	MN 19315	0	0	1	T	1	T	2.5		5	4			1	T	5.0	2.0	4	T
19	MSF 099-3	0	0	5	1	0	0	2.7		5	2			1	T	3.0	1.5	1	T
20	MSF 373-8	0	0	2	2	1	T	1.3		2	1			1	T	3.0	1.5	1	T
21	V 0123-25	0	0	5	T	1	T	3.7		0	0			1	1	2.0	1.5	1	T
22	W 1201	0	0	1	1	1	T	1.0		2	2			1	T	3.0	1.5	1	T
23	W 1386	0	0	0	0	1	T	1.0		5	1			1	T	2.0	1.0	1	T
24	W 1431	0	0	0	0	1	T	0.7		0	0			1	T	0.0	0.0	1	T
25	B0766-3	0	0	0	0			1.0		2	1			3	1	3.0	1.5	1	T
26	NY 112	0	0	1	T			0.7		5	1					2.0	1.0	1	T
27	Atlantic	0	0	4	T	1	T	1.8		3	1			1	1	4.0	2.0	1	T
28	NorValley	0	0	0	0	1	1	-		5	2			1	T	1.0	0.5	1	1
29	Snowden	0	0	1	T	0	0	-		0	0			1	1	2.0	1.0	1	T
30	C 75-5-297	0	0	0	0	1	T			0	0			1	T	3.0	1.5	1	T

North Central Table 13. Disease reactions.

No.	Clone	AB	MI	MN				WI	
		B. Scurf	LB	Vert RAUDPC	Vert	LB	PVY+ No exp	PLRV+ No exp	EB
<u>RED</u>									
1	MN 19525 R	MS	-	25.3	4	86			4.0
2	Michigan Purple		36	45.5	6	86			4.8
3	ND 3196-1R	S	-	93.3	6	100			2.8
4	ND 5084-3R	MS	37	2.4	1	60.3			6.3
5	Dakota Rose	MS	-	67.4	6	84.4			3.5
6	V 0299-4	MS	31	54.3	6	88			5.1
7	CV 89023-2	MS	31	54.3	6	87			4.6
8	D.R. Norland		30	73.6	6	86.4			3.6
9	R. Pontiac	MS	-	22.7	3	48.4			5.6
<u>RUSSET / LONG</u>									
10	MN 18747 Rus		-	29.3	5	89.1	x		3.0
11	MSE 192-8 Rus		-	47.7	6	79.3			4.0
12	V 0168-3		32	71.5	6	94.8			2.5
13	W 1836-3 Rus	MS	22	23.7	4	49.2			7.0
14	A 90586-11		1	11.7	3	21.6			6.9
15	R. Burbank		24	22.1	3	53.1			6.6
16	R. Norkotah		25	68.1	6	74.5			2.8
<u>ROUND-WHITE</u>									
17	MN 19157		-	9.6	4	73.8			4.4
18	MN 19315	MS	34	56	5	80.7			2.9
19	MSF 099-3	S	-	20	4	70.4			5.6
20	MSF 373-8	S	-	0	0	68		x	6.6
21	V 0123-25	MS	34	58.2	6	82.4			2.9
22	W 1201		-	2.4	1	50.9			6.1
23	W 1386	MS	28	44	5	86			6.1
24	W 1431	S	29	37.2	5	78.3			5.9
25	B0766-3		27	7.5	2	78.7			6.3
26	NY 112		27	4	2	68.6	x		6.9
27	Atlantic		25	9.9	3	74.1			5.8
28	NorValley	MS	-	6.4	3	78.7			4.1
29	Snowden	MS	16	11.7	3	81.6			6.4
30	C 75-5-297	MS	-	2.4	1	29.3			8.3

WI Early Blight = (1-9), 1=none; MI Late Blight Trial Results as RAUDPC x100; *Phytophthora infestans* isolates 94-3, 95-7, 98-2, 00-1 inoculated 28 July 2001. Planted as a randomized complete block design consisting of 3 replications of 4 hill plots on 14 June 2001 at the MSU Muck Soils Research Farm in Bath, MI; MN Vert Trial RAUDPC and 1 = 1-12, 2 = 13-25, 3 = 26-50, 4 = 51-75, 5 = 76-90, 6 = 91-100% wilt; Late blight RAUDPC

North Central Table 14. Tuber specific gravity at harvest.

No.	Clone	AB	IA	MB	MI	MN	NE	ON	WI	Ave.	ND	OH	Ave.	Total	Rank
RED		Irrigated													
		Dryland													
1	MN 19525 R	1.077	1.060	1.082	1.062	1.072	1.072	1.080	1.083	1.073	1.091	1.074	1.083	1.075	2
2	Michigan Purple	1.079	1.065	1.082	1.066	1.078	1.090	1.074	1.083	1.077	1.088	1.073	1.081	1.078	1
3	ND 3196-1R	1.083	1.062	1.081	1.063	1.068	1.068	1.068	1.082	1.072	1.076	1.060	1.068	1.071	5
4	ND 5084-3R	1.066	1.055	1.066	1.053	1.053	1.065	1.066	1.065	1.061	1.072	1.060	1.066	1.062	8
5	Dakota Rose	1.067	1.054	1.070	1.053	1.051	1.073	1.061	1.067	1.062		1.060	1.060	1.062	9
6	V 0299-4	1.084	1.061	1.073	1.063	1.062	1.080	1.069	1.078	1.071	1.084	1.065	1.075	1.072	4
7	CV 89023-2	1.079	1.061	1.077	1.065	1.062	1.078	1.079	1.092	1.074	1.076	1.064	1.070	1.073	3
8	D.R. Norland	1.064	1.056	1.066	1.058	1.052	1.075	1.069	1.074	1.064	1.065	1.060	1.063	1.064	7
9	R. Pontiac	1.072	1.056	1.074	1.056	1.060	1.070	1.068	1.070	1.066	1.076	1.060	1.068	1.066	6
<u>RUSSET / LONG</u>															
10	MN 18747 Rus	1.074	1.067	1.077	1.062	1.054	1.074	1.073	1.075	1.070	1.090	1.063	1.077	1.071	5
11	MSE 192-8 Rus		1.063		1.065	1.065	1.075		1.072	1.068	1.067	1.067	1.067	1.068	7
12	V 0168-3	1.076	1.064	1.076	1.062	1.065	1.075	1.077	1.076	1.071	1.069	1.063	1.066	1.070	6
13	W 1836-3 Rus	1.084	1.070	1.083	1.073	1.072	1.075	1.087	1.079	1.078	1.081	1.078	1.080	1.078	2
14	A 90586-11	1.088	1.072	1.098	1.074	1.081	1.085		1.086	1.083	1.096	1.080	1.088	1.084	1
15	R. Burbank	1.082	1.075	1.088	1.070	1.079	1.074	1.078	1.080	1.078	1.083	1.070	1.077	1.078	3
16	R. Norkotah	1.075	1.072	1.082	1.064	1.062	1.077	1.075	1.074	1.073	1.084	1.063	1.074	1.073	4
<u>ROUND-WHITE</u>															
17	MN 19157	1.088	1.073	1.095	1.075	1.069	1.084	1.087	1.089	1.083	1.097	1.078	1.088	1.084	8
18	MN 19315	1.092	1.081	1.088	1.070	1.082	1.094	1.087	1.094	1.086	1.106	1.078	1.092	1.087	4
19	MSF 099-3	1.093	1.091	1.103	1.078	1.076	1.085	1.091	1.080	1.087	1.107	1.083	1.095	1.089	3
20	MSF 373-8	1.089	1.082	1.088	1.072	1.084	1.088	1.081	1.078	1.083	1.075	1.075	1.075	1.081	10
21	V 0123-25	1.080	1.079	1.084	1.071	1.063	1.085	1.081	1.091	1.079	1.091	1.070	1.081	1.080	12
22	W 1201	1.097	1.088	1.103	1.083	1.084	1.090	1.090	1.086	1.090	1.098		1.098	1.091	1
23	W 1386	1.092	1.083	1.089	1.075	1.075	1.080	1.086	1.080	1.083	1.096	1.079	1.088	1.084	7
24	W 1431	1.094	1.087	1.086	1.074	1.080	1.076	1.083	1.088	1.084	1.093	1.075	1.084	1.084	6
25	B0766-3		1.081		1.075	1.073	1.074		1.080	1.077	1.096		1.096	1.080	11
26	NY 112		1.081		1.072	1.077	1.080		1.081	1.078	1.086		1.086	1.079	13
27	Atlantic	1.095	1.091	1.108	1.080	1.088	1.096	1.086	1.086	1.091	1.094	1.079	1.087	1.090	2
28	NorValley	1.081	1.077	1.085	1.069	1.075	1.084	1.075	1.076	1.078	1.085	1.068	1.077	1.077	14
29	Snowden	1.095	1.084	1.096	1.073	1.078	1.084	1.081	1.081	1.084	1.095	1.083	1.089	1.085	5
30	C 75-5-297	1.079	1.088	1.086		1.080	1.075	1.083	1.085	1.082	1.098	1.074	1.086	1.083	9
Grand mean		1.082	1.073	1.085	1.068	1.071	1.079	1.078	1.080	1.077	1.087	1.070	1.079	1.077	

North Central Table 15. Color of reds or processed products, chips and french fries.

North Central Table 15. Color of heads of processed products, cups and frozen ones.										
No.	Clone	AB	MB	MI	MN	NE	ON	WI	OH	OH
RED										
1	MN 19525 R	34.00	25.10	1.0	DR 2			6.8	42.5	3
2	Michigan Purple	46.00	47.40	2.5	PUR	1		7.2	54.0	3
3	ND 3196-1R	39.00	40.50	3.5	DR 2			7.7	23.1	5
4	ND 5084-3R	31.25	26.20	2.5	DR 1			8.7	43.1	4
5	Dakota Rose	34.50	34.50	3.0	DR 2			8.4	66.5	2
6	V 0299-4	54.50	44.20	1.5	DR 1			5.6	48.0	4
7	CV 89023-2	39.50	50.10	2.5	DR 2			9.0	32.9	5
8	D.R. Norland	41.75	39.80	1.5	DR 1			6.7	38.4	4
9	R. Pontiac	42.00	38.70	3.0	DR 3			9.9	38.2	4
RUSSET / LONG										
10	MN 18747 Rus	60.25	61.10	1.5	0	1		3.5	54.3	2
11	MSE 192-8 Rus			2.5	0	3		6.2	59.0	2
12	V 0168-3	39.75	37.80	2.5	2	3		6.9	38.8	4
13	W 1836-3 Rus	49.25	47.20	2.0	00	3		6.1	43.0	4
14	A 90586-11	48.50	43.30	2.0	0	3		5.6	28.9	5
15	R. Burbank	49.50	37.80	2.5	0	2		7.1	43.8	3
16	R. Norkotah	38.25	49.40	2.0	00	3		6.2	46.1	3
ROUND-WHITE										
17	MN 19157	59.75	61.70	2.0	5.25	1	62.2	4.4	63.6	2
18	MN 19315	63.50	68.50	1.5	3.75	1	58.6	3.6	59.3	2
19	MSF 099-3	64.25	55.30	1.5	3.25	1	58.3	3.6	51.8	3
20	MSF 373-8	50.75	52.00	1.0	3	1	60.1	4.6	55.3	2
21	V 0123-25	63.50	69.40	1.0	3.75	1	61.1	2.8	60.7	2
22	W 1201	62.00	54.80	1.5	3	1	61.8	3.3		
23	W 1386	60.50	61.70	1.5	3.75	1	61.7	4.0	49.7	3
24	W 1431	65.00	64.90	1.5	4	1	58.5	4.0	64.1	2
25	B0766-3			1.5	2.75	1		3.3		
26	NY 112			1.5	3	2		4.0		
27	Atlantic	60.75	52.60	1.5	4.25	1	63.3	3.8	59.7	2
28	NorValley	57.50	62.20	1.0	6	1	62.4	3.7	67.2	1
29	Snowden	63.00	60.50	1.0	2	1	67.0	2.9	63.8	2
30	C 75-5-297	43.25	37.80		5.25	1	54.5	6.5	49.1	3

[illegible]

North Central Table 17. Comments on entries.

No.	Clone	AB	IA	MB	MIN
RED					
1	MN 19525 R		Round, Red		Attr, good skn, ex. Shp, few skin, unif; K
2	Michigan Purple	stolon att	Round/Oblong, Purple	Attractive color & skin set	Okay here, attr, smooth, Lg blocky, attr color; K
3	ND 3196-1R	stolon att	Round, Red, Scab	Stolon adhesion, poor skin set	Ex. Color, skins, Unif Sz and shp, skin bruise severe; D
4	ND 5084-3R		Oblong/Round, Red, Large, Nice	Attractive color & skin set	Ex. Shp, unif SS, ex. Color, stol, bruise; D
5	Dakota Rose		Oblong, Red, Scab		Unif shp, lg sz, 75% Bruise, v. poor skins; D++
6	V 0299-4		Oblong, Red, Smooth, Nice		V attr, smooth, unif SS, few skin, good color; K
7	CV 89023-2		Oblong, Red, Smooth, Nice	Good color	S sz, unif shp, var sz, ex. Color, few skin; K-
8	D.R. Norland		Oblong, Red, Scab		Unif Sz Sh, ex color, Rot; K
9	R. Pontiac		Round, Red, Smooth		Irreg shp, good sz, pale color, lumpy; D
RUSSET / LONG					
10	MN 18747 Rus		Oblong, White, Smooth, Nice		Lg. Sz, lt thin skin, few rot, few short; I
11	MSE 192-8 Rus		Oblong, White, Russet		Ex. Length, FF, good skin, Attr shp & sz, good skin, pts; K
12	V 0168-3		Oblong, White, Nice		Lg. Sz, short for FF, smooth, ex skin texture; I+
13	W 1836-3 Rus		Oblong, White, Russet, Nice		Medium length, ex. Skin, short for FF, some points, attr; K-
14	A 90586-11		Oblong, White, Russet, Scab		Good length FM not FF, many irreg, long poor skin, misshp; D
15	R. Burbank		Dumbell, White, Russet		Good skin, v irreg, ex. Length, rough; D
16	R. Norkotah		Oblong, White, Russet		V. attr, shallow eye, ex. ++ smooth; K++
ROUND-WHITE					
17	MN 19157		Round, White, Fusarium Rot		Ex. Unif shp sz, some small, sprouts; K
18	MN 19315		Round, White, Russet, Large, Nice		M-s sz, unif shp, needs sz, good skn, sprouts; I
19	MSF 099-3		Oblong, White, Smooth, Deep Scab		Lg sz, big, can get irr, var sz; D
20	MSF 373-8		Round, White, Smooth, Scab	Deep Eyes-rough	Lg sz, v. big, end folds, good skin, unif. end fold; D
21	V 0123-25	stolon att	Round, White		Attr, Lg sz, smooth, good skn; K
22	W 1201		Round, White, Large, Scab	Deep Eyes-rough	Small sz, attr, skins few; K
23	W 1386		Flat, White, Light Russet	Variable Shape	Okay here, few irreg. lt skn set; I
24	W 1431		Round, White, Light Russet	Stolon adhesion, poor skin set	Unif shp, good sz, good skin, some bruise; I
25	B0766-3		Round, White, Irregular Wart Like Russet		V. attr, unif SS, ex. Skin; K+
26	NY 112		Round/Oblong, White, Russet		V. attr, ex. Skin, unif SS; K+
27	Atlantic		Round, White, Smooth, Scab		Lg sz, big, unif shp; K
28	NorValley		Round, White, Smooth		V. attr, unif SS, good skin; K+
29	Snowden	stolon att	Oblong, White, Smooth		Ex. Unif SS, end fold; K+
30	C 75-5-297	stolon att	Round, White, Russet	Immature-poor skin set	V. small sz, lots here, needs sz; K as parental g'plasm

North Central Table 17. Continued.

No.	Clone	NE	ON	WI
RED				
1	MN 19525 R		round, smooth, dull red	nice shape, smooth, fading medium color
2	Michigan Purple		oversize	fading color, deep eyes, green
3	ND 3196-1R	iron sensitive	round, dark red, small	excellent color
4	ND 5084-3R		attractive, dark red	good color, stolons, deep eyes
5	Dakota Rose		attractive, small, good red	variable color, fading
6	V 0299-4	small tuber & iron sensitive	dark red	excellent color
7	CV 89023-2		dull red	fading medium color, pointed, pear
8	D.R. Norland			buckskin, fading medium color
9	R. Pontiac	oversize		pale color, deep eyes
RUSSET / LONG				
10	MN 18747 Rus		oval, smooth	almost white skin, smooth
11	MSE 192-8 Rus	oversize		nice, blocky, uniform, dark russet
12	V 0168-3	iron sensitive	very attractive, uniform, excellent prospect	short tubers, too round
13	W 1836-3 Rus		small, attractive	pointed ends
14	A 90586-11			very light russet, bad shape, patches
15	R. Burbank			medium dark russet
16	R. Norkotah	ugly		little roundish
ROUND-WHITE				
17	MN 19157		short dormancy	small, green
18	MN 19315		short dormancy	scab, rot, green, rizoctonia
19	MSF 099-3			too oval, bottle neck, rizoctonia
20	MSF 373-8	oversize	rough, large	big tubers, rough
21	V 0123-25			
22	W 1201			little rough
23	W 1386			fat, bad shape, rot
24	W 1431			flat, some offshape tubers
25	B0766-3			very smooth and nice
26	NY 112			pear, too oval
27	Atlantic			patches, protruding eyes
28	NorValley	oversize		pear, pointed bud end, rizoctonia
29	Snowden			deep eyes, rizoctonia
30	C 75-5-297			variable shape

SOUTHWESTERN REGION

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This was the fourth year for the Southwestern Regional Trials, which consisted of red, russet, and specialty entries. The Southwestern Regional Potato Research Group includes California, Colorado, and Texas. The objective is to evaluate promising advanced selections from the Texas and Colorado breeding programs. Entries that are successful in this trial are then entered in the various Western Regional Trials.

The 2001 trial consisted of 12 entries, including the check varieties Yukon Gold, Russet Norkotah, and Red LaSoda. BTX1544-2W/y again out-yielded the check variety Yukon Gold as it has in the previous two years. The two highest yielding russet entries were TC1657-1Ru and NDC5371-1Ru. NDTX4304-1R was the highest yielding red entry.

Trial locations, cooperators and cultural information are shown in Southwestern Table 1. Southwestern Table 2 lists the descriptions of the clones and varieties. Total yield, total yield of U.S. No. 1's, specific gravity, percent hollow heart, blackspot bruising, and fry color data are found in Southwestern Tables 4-6, while foliar disease ratings and antioxidant activity evaluations are shown in Southwestern Tables 7 and 8. A summary of all locations is found in Southwestern Table 9.

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Southwestern Regional Table 1. Locations, cooperators, and cultural information, 2001.

Locations	Cooperators	Irrigation	Fertilization (lb/A)	Harvest Method	Dates		
					Plant	Vine Kill	Harvest Vine Kill Days to
1. Kern Co., California (KRN)	R. Voss H. Phillips	Sprinkle	285 N, 57 K, 16 S	Machine	05-Feb	01-June	19-June 116
2. Tulelake, California (TUL)	R. Voss, H. Phillips D. Kirby	Sprinkler	16 N, 20 P	Machine	10-May	29-Aug	14-Sep 111
3. San Luis Valley, Colorado (SLV)	D. Holm, F. Popiel S. Thompson	Pivot	118N, 60P, 40K, 87S	Machine	16-May	31-Aug	25-Sep 105
4. Springlake, Texas (SPR)	C. Miller, J. Koym D. Scheuring	Pivot	160N, 33P, 63K	Machine/Hand	20-Mar	28-Jun	11-July 100
				Russets	21-Mar	27-Jul	14-Aug 128
				Specialty	22-Mar	13-Jul	31-July 113

Southwestern Regional Table 2. Description of clones, 2001.

Clone / Variety	Parents		Flower Color	Vine Size	Maturity	Tuber Shape	Skin Color	Entered By	Use
	Female	Male							
1. Yukon Gold	Norgleam	W5279-4	Pink	Medium	Early	Oval	White	Check	Specialty
2. BTX1544-2W/Y	BO811-13	Yukon Gold	White	Medium	Medium	Oblong	White	TX	Specialty
3. Russet Norkotah	ND9687-5Ru	ND9526-4Ru	White	Small-Med	Early	Long	Russet	Check	Fresh
4. AC92009-4Ru	A8343-12	A8784-3	White	Med-Large	Medium	Oblong	Russet	CO	Dual
5. ATX9202-1Ru	A8343-12	A8495-1	White	Medium	Medium	Oblong	Russet	TX	Fresh
6. CO92027-2Ru	AC83172-1	Fremont Russ.	White	Medium	Med-Late	Oblong	Russet	CO	Dual
7. CO92077-5Ru	Russ. Legend	Silverton Russ.	White	Medium	Medium	Oblong	Russet	CO	Dual
8. NDC3372-1Ru	ND4093-4Ru	AO84275-3	White	Medium	Medium	Oblong	Russet	CO	Dual
9. TC1675-1Ru	Russ. Nugget	Lemhi Russ.	White	Medium	Medium	Oblong	Russet	CO	Dual
10. Red LaSoda	Triumph	Katahdin	Red-Purple	Medium	Medium	Oval	Red	Check	Fresh
11. NDTX4304-1R	ND1562-4R	NDTX1068-11R	Purple	Small-Med	Early	Round	Red	TX	Fresh
12. CO93037-6R	Co82177-9	NDO4030-12	Red-Purple	Large	Medium	Round	Red	Co	Fresh

Southwestern Regional Table 3. Total yield, merit score, and rank within type (yellow-flesh, russet, red) of clones in the Southwestern Regional Trial, 2001.

Clone / Variety	Total Yield, Merit Score (MS) ¹ , and Rank ²											
	California				Colorado				Texas			
	KRN		TUL		SLV		SPR		SPR		Mean	
	Cwt/A	MS	Rank	Cwt/A	MS	Rank	Cwt/A	MS	Rank	Cwt/A	MS	Rank
1. Yukon Gold	323	3.3	2	451	4.0	1	385	4.0	2	295	4.0	1
2. BTX1544-2W/Y	410	2.5	1	450	3.3	2	443	5.0	1	256	3.8	2
3. Russet Norkotah	321	3.8	4	389	4.0	6	406	5.0	3	200	2.9	7
4. AC92009-4Ru	217	2.0	7	519	5.0	2	345	2.0	7	320	3.7	3
5. ATX9202-1Ru	245	2.5	6	462	3.5	3	353	1.0	4	334	3.6	1
6. CO92027-2Ru	326	3.3	3	413	3.8	5	349	1.0	6	314	2.9	4
7. CO92077-5Ru	268	3.4	5	371	2.5	7	350	1.0	5	230	2.2	6
8. NDC5372-1Ru	353	3.5	2	440	2.5	4	409	5.0	2	321	2.7	2
9. TC1675-1Ru	389	3.3	1	560	4.8	1	417	5.0	1	289	2.4	5
10. Red LaSoda	409	2.5	2	529	2.7	1	482	1.0	3	333	3.9	1
11. NDTX4304-1R	482	3.5	1	474	3.8	2	519	5.0	1	323	4.7	2
12. CO93037-6R	380	3.5	3				516	5.0	2	233	2.8	3
Mean	344	3.1		460	3.6		415	3.3		287	3.3	
										375	3.4	

¹ 1= very poor, 5=excellent² Rank within type

Southwestern Regional Table 4. Yield and percent of U.S. No. 1's > 4 oz. and rank within type of clone in the Southwestern Regional Trial, 2001.

Clone / Variety	California			Colorado		Texas		Mean		
	KRN		TUL	SLV		SPR				
	Cwt/A	% Rank ¹		Cwt/A	% Rank	Cwt/A	% Rank			
1. Yukon Gold	301	93 2	402	89 1	327	85 2	276	93 1	326	90 2
2. BTX1544-2W/Y	351	86 1	386	86 2	369	83 1	226	88 2	333	86 1
3. Russet Norkotah	286	89 4	352	90 4	338	83 1	154	77 7	282	85 5
4. AC92009-4Ru	179	82 7	500	96 1	321	93 2	285	89 1	321	90 2
5. ATX9202-1Ru	202	82 6	402	87 3	254	72 5	280	84 2	284	81 4
6. CO92027-2Ru	297	91 3	347	84 5	226	65 7	220	70 4	273	78 6
7. CO92077-5Ru	240	89 5	326	88 7	252	72 6	162	70 6	245	80 7
8. NDC5372-1Ru	319	90 2	343	78 6	307	75 4	226	70 3	299	78 3
9. TC1675-1Ru	339	87 1	499	89 2	321	77 2	183	63 5	336	79 1
10. Red LaSoda	385	94 2	418	79 1	393	82 2	269	81 1	366	84 2
11. NDTX4304-1R	458	95 1	398	84 2	428	82 1	244	76 2	382	84 1
12. CO93037-6R	347	91 3			366	71 3	85	36 3	266	66 3
Mean	309	89	398	86	325	78	217	75	309	82

¹Rank within type

Southwestern Regional Table 5. Specific gravity (1.0XX) of clones in the Southwestern Regional Trial, 2001.

Clone / Variety	California		Colorado SLV	Texas		Mean
	KRN	TUL		SPR		
1. Yukon Gold	79	79	85	62		76
2. BTX1544-2W/Y	80	77	87	61		76
3. Russet Norkotah	85	66	80	62		73
4. AC92009-4Ru	90	86	102	76		88
5. ATX9202-1Ru	92	82	102	77		88
6. CO92027-2Ru	93	85	86	71		84
7. CO92077-5Ru	75	69	77	54		69
8. NDC5372-1Ru	86	82	90	68		81
9. TC1675-1Ru	90	85	101	77		88
10. Red LaSoda	74	75	78	49		69
11. NDTX4304-1R	71	65	68	61		66
12. CO93037-6R	78		87	49		71
Mean	82	77	87	64		77

Southwestern Regional Table 6. Percent hollow heart/brown center, blackspot bruising, and fry data of clones in the Southwestern Regional Trial, 2001.

Clone / Variety	Percent Hollow Heart			Blackspot Bruising ¹		Fry Data ²	
	Colorado		Texas	Colorado		SLV ³	SLV ⁴
	SLV	SPR		SLV	Mean		
1. Yukon Gold							
2. BTX1544-2W/Y	0.4	0	0	3.3	0.2	1	4
	0.7	0	0	2.6	0.3	1	2
3. Russet Norkotah							
4. AC92009-4Ru	1.0	0	0	4.6	0.5	2	3
5. ATX9202-1Ru	0.0	0	0	3.1	0.0	1	2
6. CO92027-2Ru	1.3	0	0	3.3	0.7	1	3
7. CO92077-5Ru	0.0	0	0	3.4	0.0	1	2
8. NDC5372-1Ru	0.0	0	0	4.0	0.0	2	3
9. TC1675-1Ru	0.3	0	0	2.6	0.2	1	1
	0.0	0	0	3.7	0.0	1	1
10. Red LaSoda							
11. NDTX4304-1R	9.8	0	0	3.1	4.9	2	2
12. CO93037-6R	0.4	0	0	3.0	0.2	2	3
	0.0	0	0	1.6	0.0	2	3
Mean	1.2	0.0	0.0	3.2	0.6	1.4	2.4

¹1=severe, 5= none

²0=light, 4=dark

³at harvest

⁴9 weeks at 45° F

Southwestern Regional Table 7. Foliar disease ratings and incidence and severity of tuber infection at harvest of clones in the Southwestern Regional Trial, 2001 in replicated late blight resistance screening trials at Corvallis, 2001.

Clone / Variety	Foliar Rating ¹	Foliar Rating ²	% Tuber Infection ³
1. Yukon Gold	8.00	9.00	50.0
2. BTX1544-2W/Y	7.75	9.00	17.5
3. Russet Norkotah	8.00	8.75	50.0
4. AC92009-4Ru	7.00	8.00	0.0
5. ATX9202-1Ru	7.25	8.50	35.0
6. CO92027-2Ru	8.00	9.00	40.0
7. CO92077-5Ru	7.50	8.50	17.5
8. NDC5372-1Ru	7.25	8.75	30.0
9. TC1675-1Ru	7.25	8.75	52.5
10. Red LaSoda	8.00	9.00	50.0
11. NDTX4304-1R	7.75	9.00	32.5
12. CO93037-6R	6.75	8.75	30.0
Mean	7.54	8.75	33.75

Ratings are averages for 4 reps: 1 no foliar injury; 2=1-5% injury; 3 = 5-10% injury; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 =60-75%; 8 = 75-90%; 9 = 90-100% injury. Data provided by Dr. Alvin Mosley, Oregon State University.

¹ Foliar rating taken on 9/21/01.

² Foliar rating taken on 9/28/01.

³ Percent of late blight infected tubers based on 10 randomly selected tubers.

Southwestern Regional Table 8. Antioxidant activity of clones in the Texas Southwestern Regional Trial as determined by DPPH assay¹ – 2001.

Clone/Variety	ug Trolox equivalents/gfw ²	ug ascorbic acid equivalents/gfw ³
1. Yukon Gold	300.69 ⁴	276.23
2. BTX 1544-2W/Y	333.44	306.11
3. Russet Norkotah	576.67	527.96
4. AC92009-4Ru	208.86	192.47
5. ATX9202-1Ru	489.76	448.69
6. CO92027-2Ru	264.19	242.95
7. CO92077-5Ru	384.69	352.85
8. NDC5372-1Ru	233.78	215.21
9. TC1675-1Ru	202.26	186.46
10. Red LaSoda	413.06	378.73
11. NDTX4304-1R	122.15	113.38
12. CO93037-6R	242.02	222.74
Mean	308.06	288.65
Tukey's (.05)	233.17	212.68

¹The assay used to determine antioxidant activity was based on Brand Williams, et al. 1995. Use of free radical method to evaluate antioxidant activity. Levensm. Wiss. Technol. 28: 25-30
Antioxidants soluble in methanol were extracted and allowed to react with the stable radical, 2,2,-Diphenyl-1-picrylhydrazyl (DPPH). This provided an easy and rapid evaluation of the antiradical properties of the potato extracts based on absorbance.

²ug Trolox equivalents/gfw - Absorbance was converted to equivalent activity of trolox based on a standard curve using the following equation: $921.81 * \Delta A + 4.6945$

³ug Ascorbic acid equivalents/gfw - Absorbance was converted to equivalent activity of ascorbic acid based on a standard curve using the following equation: $840.81 * \Delta A - 2.1314$

⁴Means are from averages of 3 reps harvested June 19, 2001 (91 DAP), Springlake, TX.

Southwestern Regional Table 9. Summary of clones in the Southwestern Regional Trial, 2001.

Clone / Variety	Plant Characteristics					Yield					Tuber Characteristics				
	%	Stems/	Vine ¹	Vine ²	Total	%	%	%	%	%	Specific	Tuber	Tuber	Skin	Merit ⁴
	Stand	Hill	Size	Mat.	Yield	#1s	>10 ³	<4	Culls	Gravity	Shape	Weight	Color	Score	
1. Yukon Gold	93	2.1	3.6	2.2	363	90	34	7	3	1.076	Oval	6.8	White	4.0	
2. BTX1544-2W/Y	95	2.1	3.3	2.6	390	86	20	10	4	1.076	Oblong	5.8	White	4.0	
3. Russet Norkotah	91	2.6	2.4	2.3	329	85	34	12	3	1.073	Long	5.2	Russet	4.0	
4. AC92009-4Ru	92	1.8	3.5	3.2	350	90	21	9	1	1.088	Oblong	6.8	Russet	3.6	
5. ATX9202-1Ru	94	1.7	3.6	3.2	348	81	21	13	5	1.088	Oblong	6.4	Russet	2.7	
6. CO92027-2Ru	93	2.5	2.9	2.9	351	78	14	21	2	1.084	Oblong	4.5	Russet	2.6	
7. CO92077-5Ru	85	2.3	3.3	3.0	305	80	22	18	2	1.069	Oblong	3.9	Russet	1.9	
8. NDC5372-1Ru	92	2.6	3.7	3.4	381	78	7	20	2	1.081	Oblong	4.1	Russet	3.4	
9. TC1675-1Ru	95	2.6	3.6	2.9	414	79	15	17	4	1.088	Oblong	3.7	Russet	4.1	
10. Red LaSoda	90	2.2	3.5	2.9	438	84	26	11	5	1.069	Oval	4.9	Red	2.5	
11. NDTX4304-1R	94	2.4	3.0	2.6	450	84	23	13	3	1.066	Round	4.5	Red	4.5	
12. CO93037-6R	94	3.0	4.1	3.4	376	66	8	32	1	1.071	Round	2.6	Red	3.9	
Mean	92	2.3	3.4	2.9	375	82	21	15	3	1.077		4.9		3.4	

¹1=very small, 2=small, 3=medium, 4=large, 5=excellent²1=very early, 2=early, 3=medium, 4=late,

5=very late

³CA reported >12 oz

WESTERN REGION

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and Cooperators:

California: R. Voss, H. Phillips, H. Carlson, D. Kirby, and J. Nunez; **Colorado:** D. Holm; F. Popiel; **Idaho:** S. Love, T. Salaiz, and P. Bain; **New Mexico:** M. O'Neil and C. Owen; **Oregon:** A. Mosley, D. Hane, K. Rykbost, B. Charlton, C. Shock, E. Eldredge, and S. James; **Texas:** J.C. Miller, Jr., J. Koym, and D. Schuering; **Washington:** R. Thornton, R. Knowles, E. Driskill, N. Fuller, G. Newberry, and C. Brown.

The 2001 Western Regional Potato Variety Trial consisted of 14 trials conducted in seven states. Table 1 lists the trial locations, respective cooperators, and pertinent cultural information at each site. Thirteen experimental selections and four check cultivars were trialed. Entries' parentage, their submitting organizations, and descriptions of their tuber and vine characteristics are given in Table 2.

Total and U.S. No. 1 Yield (Tables 3 & 4): Early Harvest: Among entries represented at all sites, A8893-1 had the highest total yield (503 cwt/A), followed closely by TXNS296 (495 cwt/A). Although not represented at Kern County, CA, entries A90586-11 and TXNS102 also had high total yields of 522 and 471 cwt/A, respectively, at the remaining 4 trial sites. A8893-1 was the highest-yielding entry for U.S. No. 1 yield (401 cwt/A), followed by A90586-11 (384 cwt/A), A9045-7 (380 cwt/A) and TXNS296 (379 cwt/A).

Late Harvest: As in 2000, A90586-11 was the top yielder at 683 cwt/A. A9045-7 (649 cwt/A) and Ranger Russet (623 cwt/A) rounded out the top three entries for total yield. A9045-7 was number one for U.S. No. 1 yield at 551 cwt/A, followed by A8893-1 (505 cwt/A), A90586-11 (502 cwt/A), and A9014-2 (501 cwt/A).

Tuber Size Distribution (Tables 5 & 6):

Early Harvest: Across all sites, Shepody (132 cwt/A) and A9045-7 (131 cwt/A) had the greatest yields of oversize tubers.

Late Harvest: As in 2000, A9045-7 was number one for yield of tubers > 10-12 ounces at 305 cwt/A,

followed by A9014-2 (244 cwt/A) and Ranger Russet and A90586-11 (tied at 223 cwt/A).

Entries AC91014-2 and Russet Burbank had a large percentage of undersize tubers (<4 ounces) across both the early and late trials.

Specific Gravities (Table 7): Across the early and late harvest trials, A90586-11, AC91014-2, and AC87079-3 had consistently higher gravities. Stampede Russet, and Russet Norkotah and its derivatives (TXNS102 and 296) had the lowest gravities.

Tuber Size and Shape (Table 8): Shepody (8.3 ounces), ATX9202-3RU (7.1 ounces), A9045-7 (7.0 ounces), and Stampede Russet (6.9 ounces) had the largest tuber size averaged across all early harvest sites. In the late harvest trials, A9045-7 (11.9 ounces) and Ranger Russet (11.1 ounces) had the largest tuber sizes.

Entries with consistently long tubers (ratings of ≥ 4.0) across early and late harvest trials were TXNS296, TXNS102, AC87138-4, A90586-11, AO92017-6, Russet Norkotah, Ranger Russet, and Russet Burbank.

Summary of External and Internal Defects (Tables 9 & 10): A mean summary of external and internal defects was compiled for each entry, along with specific problem sites where extreme values were observed.

Growth Cracks: In the early harvest trials, Russet Burbank and Stampede Russet had the highest incidence of growth cracks. In the late harvest trials, growth cracks were severe for AO92017-6 at Othello, WA and for ATX9202-3RU at San Luis Valley, CO.

Second Growth: At the early harvest sites, second growth was noted as a problem for Shepody, and A9014-2; second growth of tubers of A9014-2 was especially severe at Springlake, TX. Second growth also was noted as severe for Russet Burbank and A90586-11 at the Othello, WA late harvest site.

Shatter Bruise: Stampede Russet had the highest incidence of shatter bruise in both the early and late trials; shattering of tubers of Stampede Russet was especially severe at Hermiston, OR.

Scab: Scab was only noted as excessive for A90586-

11 at Aberdeen, ID.

Hollow Heart/Brown Center: Russet Burbank had the highest incidence across both the early and late harvest trials. A9014-2, AC87079-3, AC87138-4, and AC91014-2 had $\geq 48\%$ hollow heart at certain sites in the late harvest trial.

Internal Brown Spot: Not noted as a problem, with the exception of 25% incidence in tubers of Ranger Russet, Russet Norkotah, and Shepody at Kern County, CA.

Net Necrosis/Vascular Discoloration: Incidence of this internal defect was greatest in the early harvest trials. Shepody and Ranger Russet had average percentages of $> 30\%$.

Blackspot Bruise: AC87138-4 had among the lowest rankings for resistance to blackspot at both the late harvest trials and in the abrasive peel tests.

French Fry Color and Quality (Table 11): Fry scores from the field and from 45° storage were generally acceptable for all entries at all sites—the exception being the Othello, WA site. From storage at 40°, A9014-2 and ATX9202-3RU displayed cold-sweetening resistance with fry color score of 1.9 and 2.2 respectively.

Percent sugar ends was highest for Russet Burbank (28%) and the Texas Norkotah Strains.

Disease Evaluation and Metribuzin Reaction (Table 12): Trials for evaluating disease resistance of entries were conducted in Aberdeen, ID, Mt. Vernon and Prosser, WA, and Hermiston and Corvallis, OR.

Notable low incidences of:

- Verticillium/Early Dying: A90586-11
- Late Blight (Foliar): A90586-11
- Late Blight (Tuber): ($\leq 15\%$ @ Corvallis)
AC87079-3, A9045-7, A90586-11, and Russet Burbank.
- Net Necrosis ($<15\%$ @ Hermiston, OR): A9014-2, AC89536-5, and Stampede Russet.
- Corky Ringspot: A9014-2 and A90586-11
- Fusarium Dry Rot (both species): A8893-1 and A9014-2.
- Erwinia Soft Rot: A9014-2 and AC87079-3.

Notable high incidences of:

- Verticillium /Early Dying: Russet Burbank, Russet

Norkotah, and A8893-1

-Late Blight-Tuber ($\geq 45\%$ @ Corvallis, OR): Ranger Russet, Russet Norkotah, TXNS102, and AO92017-6.

-Net Necrosis ($\geq 45\%$ @ Hermiston, OR): Russet Burbank, Shepody, AC87079-3, and TXNS102.

-Early Blight-Tuber: AC87138-4, A8893-1, and AO92017-6.

-Fusarium Dry Rot (F_c): Russet Burbank

Chemical Analyses of Tubers (Table 13): Data is presented on tuber solids, sugars, proteins, vitamin C, and glycoalkaloids. Relatively high protein contents were identified in A8893-1, AC87079-3, and AC91014-2. Ranger Russet, A9014-2, A90586-11, AC89536-5, and AC91014-2 had high vitamin C contents (≥ 30 mg/100g FWB). ATX9202-3RU, with a total glycoalkaloid content of 18.3 mg/100 g FWB, was nearing the critical threshold of 20 mg/100 g FWB.

Merit Scores (Table 14): Entries were evaluated for their processing and fresh market merit. A90586-11, A9014-2, and A9045-7 were rated as the top three entries for processing merit. TXNS296, A9014-2, Russet Norkotah, and A9045-7 were recognized as having high merit for the fresh market.

Summary of Entries' Performances (Table 15):

Yields, tuber size and shape, specific gravity, fry color from 45° F, merit scores, noted problems, and disposition are summarized for each entry.

Three Year Summary of Graduating Entries

(Table 16): A8893-1, A9014-2, AC87079-3, AC87138-4, TXNS102, and TXNS296 completed the maximum three years of testing in the Western Regional Potato Variety Trial. A summary of their performances relative to Russet Burbank and Russet Norkotah in each of the three years is given, as well as a 3- year average.

WESTERN REGIONAL TABLE 1. LOCATIONS, COOPERATORS, AND CULTURAL INFORMATION

No.	Locations	Cooperators	Tnal	Irrigation	Fertilizer N-P-K-S(lb/A)	Planting Date	Harvest Date	Days to Vine Kill	Days to Harvest	Pesticides Applied ¹		
										Herbicides	Insecticides	Fungicides
1	Kern Co. California (KRN)	R. Voss, H. Phillips, J. Nunez	Early	Sprink.	245-196-0-0+	22-Feb	28-Jun	-	126	Eptam, Prowl		Bravo W.S.
2	Tulelake California (TUL)	R. Voss, H. Phillips, D. Kirby, H. Carlson	Late	Sprink.	160-20	10-May	14-Sep	111	127	Lexone, Matrix	Pounce	Curzate, Dithane, Bravo, Dithane, Kocide
3	San Luis Valley Colorado (SLV)	D. Holm, F. Poptel	Late	Pivot	118-60-40-87	16-May	25-Sep	107	132	Sencor+Eptam	Leverage 2.7	Quadris, Agri Tin 80 WP, Super Tin 80 WP, Bravo WS
4	Aberdeen Idaho (AB)	S. Love, R. Novy, D. Corsini	Late	Sprink.	220-120-40	2-May	21-Sep	127	142	Sencor DF 75% +Matrx, Eptam 7E	Admire	Dithane
5	Kimberly Idaho (KIM)	S. Love, R. Novy, D. Corsini	Late	Sprink.	130-120-60	30-Apr	9-Oct	133	162	Eptam 7E, Sencor DF 75% +Matrix	Admire	Dithane
6	Farmington New Mexico (FRM)	M. O'Neill, C. Owen	Late	Sprink.	350-104-120	26-Apr	4-Oct	-	161	Turbo		
7	Hermiston Oregon (HRM)	D. Hane, A. Mosley	Early Late	Pivot Pivot	300-100-250-50+ 335-80-250-40+	23-Mar 16-Apr	2-Aug 8-Oct	118 161	132 175	Eptam, Gramoxone, Matrix	MoCap, Admire MoCap, Admire, Comite, Monitor	Vapam Ridimil Gold, Dithane, Bravo/Quadris
8	Klamath Falls Oregon (KLM)	K. Rykbost, B. Charlton	Late	Sprink.	160-80-80-140	24-May	27-Sep	106	126			Tops MZ, Dithane, Quadris
9	Malheur Oregon (MAL)	C. Shock, A. Mosley, E. Eldredge	Early Late	Sprink. Sprink.	161-100-50-60+ 161-100-50-60+	12-Apr 19-Apr	21-Aug 27-Sep	123 148	131 161	Roundup, Prowl+Dual, Matrix	Tops-MZ- Goucho	Telone II, Ridomil+ Bravo, Dithane+ Mn, Cu, Sulfur
10	Springlake Texas (SPR)	J. C. Miller Jr., J. Koym, D. Schuering	Early	Pivot	160-33-63	21-Mar	14-Aug	128	146	Dual, Sencor, Matrx, Roundup	Genisis, Admire	Tops MZ, Bravo, Quadris
11	Pasco (PAS) Othello (OTH) Washington	R. Thornton, N. Fuller, E. Driskill, R. Knowles G. Newberry	Early Late	Pivot Sprink.	275-180-150 351-389-241	21-Mar 36984	24-Jul 3-Oct	105 171	125 183	Dual II, Sencor Eptam, Sencor, Matrix	Thimet, Asana, Fulfill, Success Comite	Quadris, Bravo Bravo, Dithane Quadris

¹Bold indicates use in both early and late trial.

WESTERN REGIONAL TABLE 2. CLONE, PARENTAGE, FLOWER COLOR, ENTRY SUBMISSION, USE, TRIAL, YEARS IN TRIAL, SEED SOURCE, STAND, TUBER AND VINE CHARACTERISTICS

Tuber and Vine Descriptions												
No. Clone	Parents	Flower Color ¹	Entered by	Use	Trial	Year in Trial	Seed Source	Percent Stand ²	Tuber Shape	Tuber Skin	Vine Size	Vine Maturity
1 RUSSET BURBANK	Buite A6595-3	W	Ck	Dual	E/L	-	OR	97	Long	Med Russet	Med-large	Medium
2 RANGER RUSSET	ND9687-5Rus	RP	Ck	Dual	E/L	-	OR	100	Long	Med Russet	Med-large	Medium
3 RUSSET NORKOTAH	ND9526-4Rus	W	Ck	Fresh	E/L	-	OR	99	Long	Med Russet	Small	Early
4 SHEPODY	Bake-King F58050	RP	Ck	Proc	E	-	OR	98	Obl-Lng	White	Med-large	Medium
5 A8893-1	A7816-14 Norking Russet	W	ID	Dual	E/L	3	OR	99	Obl-Lng	Med Russet	Med-large	Med-early
6 A9014-2	Gem Russet A8341-5	W	ID	Dual	E/L	3	ID	100	Obl-Lng	Med Russet	Med-large	Medium
7 A9045-7	Ranger Russet Russet Legend	RP	ID	Dual	E/L	2	OR	97	Obl-Lng	Light Russet	Med-large	Med-late
8 A90586-11	KSAT195-90 Ranger Russet	W	ID	Dual	E/L	2	OR	98	Long	Light Russet	Large	Med-late
9 AC87079-3	A7979-28 A7816-14	W	CO	Fresh	E/L	3	CO	98	Obl-Lng	Med Russet	Med-large	Medium
10 AC87138-4	A81323-6 Russet Norkolah	W	CO	Dual	E/L	3	OR	99	Long	Med Russet	Large	Med-late
11 AC89536-5	Buite A8469-5	RP	CO	Fresh	E/L	2	OR	100	Obl-Lng	Med Russet	Med-large	Medium
12 AC91014-2	A84180-8 A8519-4	W	CO	Dual	E/L	1	CO	99	Obl-Lng	Med Russet	Med-large	Medium
13 AO92017-6	A84180-8 A84420-5	W	OR	Dual	E/L	1	OR	97	Long	Med Russet	Large	Medium
14 ATX9202-3RU	A8343-12 A8519-4	W	TX	Dual	E/L	2	OR	96	Oblong	Med Russet	Med-large	Med-late
15 STAMPEDE RUSSET	BRT091-1 Lemhi Russet	RP	TX	Dual	E/L	1	OR	99	Obl-Lng	Med Hvy Rus	Med-large	Med-early
16 TXNS102	Norkolah Strain	W	TX	Fresh	E/L	3	TX	99	Long	Med Russet	Medium	Med-early
17 TXNS296	Norkolah Strain	W	TX	Fresh	E/L	3	TX	100	Long	Med Russet	Medium	Early

¹ P=Purple, R=Red, W=White.

² Means of all trial locations.

WESTERN REGIONAL TABLE 3. TOTAL YIELD (CWT/A) - EARLY AND LATE HARVEST

No. Clone	Total Yield - Early Harvest (CWT/A)										Total Yield - Late Harvest (CWT/A)													
	CA		OR		TX		WA		Entry		CA		CO		ID		NM		OR		WA		Entry	
	KRN	HRM	MAL	SPR	PAS	Mean/Rank	Mean/Rank	Mean/Rank	Mean/Rank	Mean/Rank	TUL	SLV	AB	KIM	FRM	HRM	KLM	MAL	OTH	Mean/Rank	Mean/Rank	Mean/Rank	Mean/Rank	
1	R. BURBANK	338	414	568	329	441	418	12	ab		554	462	405	552	328	912	508	601	651	553	11	de		
2	RANGER R.	364	481	501	395	355	419	11	ab		514	462	477	546	529	1117	595	607	765	623	3	abc		
3	R. NORKOTAH	321	535	472	258	531	423	9	ab		389	389	273	445	296	560	525	477	632	443	15	f		
4	SHEPODY	357	493	501	298	427	415	14	ab		-	507	-	-	-	839	-	-	-	-	-	-	-	
5	A8893-1	398	627	619	463	406	503	2	a		566	466	471	653	428	844	612	678	748	607	5	bcd		
6	A9014-2	292	531	478	334	447	416	13	b		604	439	502	564	472	821	516	538	782	582	9	bcde		
7	A9045-7	308	586	564	337	380	435	7	ab		583	507	493	616	480	1031	583	678	871	649	2	ab		
8	A90586-11	-	654	612	406	414	522	1			591	532	473	567	542	1150	639	738	912	683	1	a		
9	AC87079-3	423	640	572	293	286	443	6	ab		553	422	396	615	398	1013	483	679	834	599	6	bcd		
10	AC87138-4	295	503	573	337	328	407	15	ab		560	562	473	579	408	925	627	636	826	622	4	abc		
11	AC89536-5	320	613	530	304	336	421	10	ab		615	453	395	536	481	810	502	605	681	564	10	cde		
12	AC91014-2	243	452	410	241	432	355	17	b		397	362	357	379	244	587	436	471	656	432	16	g		
13	AO92017-6	335	540	524	297	210	381	16	b		568	397	465	599	472	1008	568	569	720	596	7	bcd		
14	ATX9202-3RU	303	620	510	337	382	430	8	ab		572	460	452	659	383	854	636	625	689	592	8	bcde		
15	STAMPEDE R.	265	657	518	257	526	445	5	ab		529	-	358	474	362	855	619	548	636	547	12			
16	TXNS102	-	534	478	337	537	471	4			460	-	324	519	325	769	579	510	692	522	14			
17	TXNS296	358	683	532	326	575	495	3	a		448	429	352	474	269	832	608	602	755	530	13	e		
Location Means		328	563	527	326	412	435				531	457	417	549	401	878	565	598	741	572				

Numbers followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test. Entries with no letters were not included in analyses due to incomplete representation at all sites.

WESTERN REGIONAL TABLE 4. YIELD OF U.S. #1'S (CWT/A & %) - EARLY AND LATE HARVEST

U.S. No. 1's - Early Harvest (CWT/A)													U.S. No. 1's - Late Harvest (CWT/A)																								
No. Clone	CA			OR			TX			WA			Entry	Mean/Rank	CA	CO	ID			NM			OR			WA		Entry	Mean/Rank								
	KRN	HRM	MAL	HRM	MAL	PAS	SPR	TX	PAS	SPR	TX	WA					TUL	SLV	AB	KIM	FRM ¹	HRM	KLM	MAL	OTH												
1 R. BURBANK	216	291	181	46	225	192	17	d						340	302	221	219	200	545	328	338	338	320	15	e	63	65	55	40	61	60	65	56	60	58	16	
2 RANGER R.	318	396	286	296	297	319	11	abc						429	385	354	329	447	748	434	443	551	458	10	bc	84	83	74	60	84	67	73	73	72	75	11	
3 R. NORKOTAH	286	449	313	217	412	335	8	ab						352	307	196	368	223	456	438	393	521	361	14	de	90	79	72	83	75	82	83	83	82	81	7	
4 SHEPODY	322	448	285	204	303	312	13	bc						-	422	-	-	-	534	-	-	-	-	-	-	-	-	83	-	-	-	64	-	-	-	-	-
5 A8893-1	366	508	431	372	329	401	1	a						529	393	348	523	349	670	523	588	624	505	2	ab	93	84	74	80	82	79	85	87	83	83	4	
6 A9014-2	266	465	345	280	360	343	6	ab						569	392	380	453	424	703	436	480	677	501	4	ab	94	89	76	80	90	86	84	89	87	86	1	
7 A9045-7	290	541	444	282	342	380	3	ab						497	449	403	448	408	958	509	594	690	551	1	a	85	89	82	73	85	93	87	88	79	85	2	
8 A90586-11	-	541	363	325	306	384	2							437	418	292	345	481	911	502	555	581	502	3	ab	74	78	62	61	89	79	79	75	64	73	14	
9 AC87079-3	376	466	414	211	198	333	9	ab						485	344	287	463	319	797	389	546	726	484	6	abc	87	81	72	75	80	79	81	80	87	80	8	
10 AC87138-4	261	421	379	189	254	301	14	bc						438	402	336	293	324	764	496	529	620	467	8	bc	78	71	71	51	79	83	79	83	75	74	12	
11 AC89536-5	295	480	378	184	262	320	10	abc						566	358	317	407	379	695	405	528	558	468	7	bc	92	79	80	76	79	86	81	87	82	82	6	
12 AC91014-2	209	291	271	142	303	243	16	cd						340	227	276	293	136	336	347	326	524	312	16	e	85	62	77	77	56	57	80	69	80	72	15	
13 AO92017-6	293	464	314	252	159	296	15	bc						471	295	211	339	404	873	471	472	498	448	11	bc	82	74	45	57	86	87	83	83	69	74	13	
14 ATX9202-3RU	269	572	376	272	285	355	5	ab						500	387	297	498	331	765	579	520	585	496	5	ab	87	84	66	76	86	90	91	83	85	83	5	
15 STAMPEDE R.	181	456	411	218	419	337	7	ab						442	-	288	383	309	726	554	466	544	464	9		83	-	80	81	85	85	89	85	86	84	3	
16 TXNS102	-	381	204	270	411	316	12							402	-	209	379	251	586	475	377	561	405	13		87	-	65	73	77	76	82	74	81	77	10	
17 TXNS296	323	547	307	294	424	379	4	ab						388	359	234	369	209	648	500	461	594	418	12	cd	86	84	66	78	78	82	77	79	79	79	9	
Location Means	285	454	335	238	311	326								449	363	291	382	325	689	462	476	577	448			85	79	70	70	79	78	82	79	78	78	78	

Numbers followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test. Entries with no letters were not included in analyses due to incomplete representation at all sites.

¹FRM graded by size: > 1 7/8".

WESTERN REGIONAL TABLE 5. YIELD > 10/12 OZ (CWT/A & %) - EARLY AND LATE HARVEST¹

U.S. No. 1's > 10/12 OZ - Early Harvest

No. Clone	(CWT/A)										Entry
	CA	OR		TX		WA		PAS		Mean/Rank	
	KRN	HRM	MAL	SPR	TX	WA	PAS	SPR	TX	Mean/Rank	
1 R. BURBANK	36	69	29	1	23	32	16	b			
	11	17	5	0	5	8	16				
2 RANGER R.	32	116	107	82	85	84	10	ab			
	9	24	21	21	24	20	8				
3 R. NORKOTAH	55	63	53	70	119	72	14	ab			
	17	12	11	27	22	18	11				
4 SHEPODY	66	308	91	62	133	132	1	a			
	18	62	18	21	31	30	1				
5 A8933-1	74	219	118	109	78	120	4	a			
	19	35	19	24	19	23	6				
6 A9014-2	22	174	149	100	72	103	7	a			
	8	33	31	30	16	23	5				
7 A9045-7	71	275	179	48	83	131	2	a			
	23	47	32	14	22	28	2				
8 A90586-11	-	230	114	115	59	129	3				
	-	35	19	28	14	24	3				
9 AC87079-3	132	138	113	33	31	89	9	ab			
	31	22	20	11	11	19	10				
10 AC87138-4	41	157	127	18	25	73	13	ab			
	14	31	22	5	8	16	14				
11 AC89536-5	29	209	92	20	67	83	11	ab			
	9	34	17	6	20	17	12				
12 AC91014-2	30	26	34	5	33	26	17	b			
	12	6	8	2	8	7	17				
13 AO92017-6	26	177	102	29	18	70	15	ab			
	8	33	19	10	8	16	15				
14 ATX9202-3RU	40	290	84	84	54	110	6	a			
	13	47	16	25	14	23	7				
15 STAMPEDE R.	13	237	98	58	185	118	5	a			
	5	36	19	23	35	23	4				
16 TXNS102	-	91	48	80	100	80	12				
	-	17	10	24	19	17	13				
17 TXNS296	21	178	88	108	92	97	8	a			
	6	26	16	33	16	19	9				
Location Means	46	174	96	60	74	91					
	14	30	18	18	17	20					

Numbers followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test. Entries with no letters were not included in analyses due to incomplete representation at all sites.

¹All sites reported oversize as >12 oz. with the exception of TX, CO, and HRM (early) sites which reported oversize as >10 oz. FRM graded by size with oversize being >3".

U.S. No. 1's > 10/12 OZ - Late Harvest

No. Clone	(CWT/A)										Entry
	CA	OR		TX		WA		PAS		Mean/Rank	
	KRN	HRM	MAL	SPR	TX	WA	PAS	SPR	TX	Mean/Rank	
1 R. BURBANK	92	47	79	83	12	214	57	123	112	91	15
	17	10	20	15	4	23	11	20	17	15	15
2 RANGER R.	234	116	203	185	48	529	179	187	322	223	4
	45	25	43	34	9	47	30	31	42	34	4
3 R. NORKOTAH	159	89	34	170	14	129	225	104	268	132	14
	41	23	12	38	5	23	43	22	42	28	14
4 SHEPODY	-	171	-	-	-	393	-	-	-	-	-
	-	34	-	-	-	47	-	-	-	-	-
5 A8933-1	248	73	137	260	26	271	187	277	280	195	8
	44	16	29	40	6	32	31	41	37	31	9
6 A9014-2	342	131	241	278	80	372	166	291	297	244	2
	57	30	48	49	17	45	32	54	38	41	2
7 A9045-7	271	181	263	297	18	644	271	289	508	305	1
	46	36	53	48	4	62	46	43	58	44	1
8 A90586-11	247	167	140	122	34	577	206	187	328	223	3
	42	31	30	22	6	50	32	25	36	31	10
9 AC87079-3	215	69	127	262	41	384	103	153	358	190	9
	39	16	32	43	10	38	21	22	43	29	11
10 AC87138-4	262	68	214	146	42	292	237	260	373	210	6
	47	12	45	25	10	32	38	41	45	33	5
11 AC89536-5	339	65	168	247	8	263	107	178	140	168	12
	55	14	43	46	2	32	21	29	21	29	12
12 AC91014-2	115	15	60	55	0	80	37	33	181	64	16
	29	4	17	15	0	14	8	7	28	14	16
13 AO92017-6	241	48	104	220	81	441	149	219	300	200	7
	42	12	22	37	17	44	26	39	42	31	8
14 ATX9202-3RU	293	120	95	367	28	384	260	206	211	218	5
	51	26	21	56	7	45	41	33	31	35	3
15 STAMPEDE R.	158	-	107	128	21	247	241	147	215	158	13
	30	-	30	27	6	29	39	27	34	28	13
16 TXNS102	222	-	72	207	26	298	235	119	275	182	11
	48	-	22	40	8	39	41	23	40	33	6
17 TXNS296	193	107	88	167	12	342	243	175	330	184	10
	43	25	25	35	4	41	40	29	44	32	7
Location Means	227	98	133	200	31	315	181	184	281	187	
	42	21	31	36	7	38	31	30	37	30	

WESTERN REGIONAL TABLE 6. YIELD < 4 OZ (CWT/A & %) - EARLY AND LATE HARVEST

Yield < 4 OZ - Early Harvest
(CWT/A)

No. Clone	Yield < 4 OZ - Early Harvest (CWT/A)										Yield < 4 OZ - Late Harvest (CWT/A)														
	CA	KRN	HRM	MAL	SPR	TX	WA	PAS	Mean/Rank	Entry	CA	CO	SLV	AB	ID	NM	FRM ¹	HRM	KLM	MAL	OTH	WA	Entry	Mean/Rank	
1 R. BURBANK		34	70	58	53	53	57	57	54	3	ab	42	151	33	30	129	118	58	11	8	12	15	1	a	
		10	17	10	16	13	13	13	13	5		8	33	9	5	39	13	11	8	12	15	2			
2 RANGER R.		30	54	26	40	30	30	36	13	bcd		22	56	17	10	82	40	26	27	40	36	14	cd		
		8	11	5	10	8	9	14	14			4	12	4	2	16	4	4	5	5	6	15			
3 R. NORKOTAH		25	73	23	28	28	54	41	11	bcd		16	70	47	13	74	67	16	31	35	41	11	bcd		
		8	14	5	11	10	9	12	12			4	18	17	3	25	12	3	7	6	10	3			
4 SHEPODY		21	21	12	47	23	25	17	d			-	48	-	-	-	21	-	-	-	-	-	-	-	
		6	4	2	16	5	7	16	16			-	9	-	-	-	3	-	-	-	-	-	-	-	
5 A8893-1		24	62	30	76	48	48	9	abcd			28	71	35	27	79	80	23	25	47	46	6	bc		
		6	10	5	16	12	10	10	10			5	15	7	4	18	9	4	4	6	8	10			
6 A9014-2		25	37	17	42	60	36	12	bcd			16	41	39	16	49	60	25	23	48	35	15	cd		
		9	7	4	13	13	9	13	13			3	9	8	3	10	7	5	4	6	6	14			
7 A9045-7		13	25	23	40	26	25	16	cd			19	47	15	9	73	27	9	24	19	27	16	d		
		4	4	4	12	7	6	17	17			3	9	3	1	15	3	2	4	2	5	16			
8 A90586-11		-	57	37	72	49	54	4	4			25	67	38	23	62	41	32	49	51	43	9	bcd		
		-	9	6	18	12	11	8	8			4	13	8	4	11	4	5	7	6	7	13			
9 AC87079-3		26	89	36	52	51	51	5	abc			44	71	56	24	79	83	44	38	43	53	4	b		
		6	14	6	18	18	12	6	6			8	17	14	4	20	8	9	6	5	10	5			
10 AC87138-4		31	51	35	52	55	45	10	bcd			25	157	23	14	84	85	29	27	33	53	5	b		
		10	10	6	15	17	12	7	7			5	28	5	2	21	9	5	4	4	9	7			
11 AC89536-5		24	63	26	105	31	50	8	abcd			32	87	38	19	102	74	41	34	74	56	3	b		
		8	10	5	35	9	13	4	4			5	19	10	4	21	9	8	6	11	10	4			
12 AC91014-2		33	115	29	94	90	72	1	a			37	132	48	33	108	106	65	46	73	72	2	a		
		14	25	7	39	21	21	1	1			9	36	13	9	44	18	15	10	11	18	1			
13 AO92017-6		27	54	22	41	25	34	15	bcd			29	93	40	19	68	59	42	17	44	46	7	bc		
		8	10	4	14	12	10	11	11			5	23	9	3	14	6	7	3	6	9	9			
14 ATX9202-3RU		19	28	36	49	41	35	14	bcd			20	40	62	11	53	47	18	30	45	36	13	cd		
		6	5	7	15	11	9	15	15			4	9	14	2	14	6	3	5	6	7	12			
15 STAMPEDE R.		84	56	40	30	44	51	6	abc			40	-	23	25	53	63	24	36	54	40	12			
		32	9	8	12	8	14	3	3			8	-	6	5	15	7	4	6	9	7	11			
16 TXNS102		-	105	36	58	63	66	2	2			20	-	46	15	74	75	24	48	48	44	8			
		-	20	7	17	12	14	2	2			4	-	14	3	23	10	4	9	7	9	6			
17 TXNS296		35	69	32	31	83	50	7	abcd			18	60	43	14	60	65	33	31	57	42	10	bcd		
		10	10	6	9	14	10	9	9			4	14	12	3	22	8	5	5	8	9	8			
Location Means		30	61	30	53	49	45	45	45			27	75	38	19	77	85	32	33	43	47	47			
		10	11	6	17	12	11	11	11			5	18	10	4	21	8	6	6	7	9	9			

Numbers followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test. Entries with no letters were not included in analyses due to incomplete representation at all sites.

¹FRM graded by size: <1 7/8".

WESTERN REGIONAL TABLE 7. SPECIFIC GRAVITY - EARLY AND LATE HARVEST

Specific Gravity - Early Harvest

No. Clone	CA		OR		TX		WA		Entry Mean/Rank
	KRN	HRM	HRM	MAL	SPR	PAS	PAS		
1 R. BURBANK	1.087	1.067	1.088	1.055	1.082	1.076	13	ab	
2 RANGER R.	1.083	1.064	1.092	1.072	1.081	1.079	8	ab	
3 R. NORKOTAH	1.085	1.062	1.078	1.059	1.077	1.072	14	bc	
4 SHEPODY	1.089	1.061	1.090	1.068	1.078	1.077	11	ab	
5 A8893-1	1.086	1.070	1.089	1.069	1.077	1.078	9	ab	
6 A9014-2	1.090	1.069	1.095	1.062	1.082	1.080	6	ab	
7 A9045-7	1.085	1.070	1.094	1.067	1.080	1.079	7	ab	
8 A90586-11	-	1.068	1.099	1.082	1.083	1.083	1		
9 AC87079-3	1.095	1.073	1.096	1.058	1.082	1.081	4	a	
10 AC87138-4	1.080	1.063	1.097	1.060	1.083	1.077	12	ab	
11 AC89536-5	1.089	1.069	1.089	1.068	1.083	1.080	5	ab	
12 AC91014-2	1.086	1.072	1.100	1.068	1.086	1.082	2	a	
13 AO92017-6	1.089	1.069	1.093	1.072	1.083	1.081	3	a	
14 ATX9202-3RU	1.085	1.066	1.094	1.067	1.079	1.078	10	ab	
15 STAMPEDE R.	1.048	1.058	1.069	1.061	1.067	1.061	17	d	
16 TXNS102	-	1.065	1.074	1.057	1.078	1.069	15		
17 TXNS296	1.058	1.064	1.077	1.061	1.077	1.068	16	cd	
Location Means	1.082	1.066	1.089	1.065	1.080	1.076			

Specific Gravity - Late Harvest

CA	CO	ID		NM		OR			WA		Entry		
		TUL	SLV	AB	KIM	FRM	HRM	KLM	MAL	OTH		Mean/Rank	
1.083	1.088	1.078	1.081	1.081	1.081	1.081	1.075	1.085	1.081	1.079	1.081	11	cd
1.076	1.090	1.091	1.084	1.092	1.092	1.079	1.088	1.102	1.088	1.088	1.088	5	ab
1.066	1.077	1.071	1.067	1.076	1.076	1.058	1.072	1.074	1.075	1.071	1.071	15	e
-	1.087	-	-	-	-	1.067	-	-	-	-	-	-	
1.081	1.087	1.079	1.082	1.078	1.078	1.070	1.081	1.089	1.078	1.081	1.081	12	d
1.080	1.093	1.085	1.081	1.091	1.091	1.073	1.081	1.091	1.089	1.089	1.085	6	bc
1.077	1.096	1.088	1.088	1.089	1.081	1.086	1.101	1.084	1.088	1.088	1.088	4	ab
1.081	1.102	1.090	1.087	1.095	1.078	1.089	1.105	1.087	1.090	1.090	1.090	1	a
1.084	1.093	1.081	1.094	1.088	1.078	1.088	1.101	1.083	1.088	1.088	1.088	3	ab
1.079	1.095	1.084	1.079	1.086	1.070	1.085	1.094	1.084	1.084	1.084	1.084	7	cd
1.072	1.094	1.077	1.084	1.081	1.070	1.089	1.097	1.086	1.083	1.083	1.083	8	cd
1.084	1.101	1.086	1.087	1.088	1.071	1.092	1.098	1.086	1.088	1.088	1.088	2	ab
1.077	1.095	1.084	1.084	1.086	1.076	1.087	1.090	1.072	1.083	1.083	1.083	9	cd
1.076	1.097	1.077	1.081	1.083	1.071	1.083	1.085	1.078	1.081	1.081	1.081	10	cd
1.068	-	1.066	1.061	1.074	1.057	1.070	1.074	1.064	1.067	1.067	1.067	16	
1.069	-	1.074	1.072	1.079	1.063	1.075	1.074	1.075	1.072	1.072	1.072	14	
1.068	1.084	1.073	1.068	1.0765	1.060	1.074	1.077	1.072	1.073	1.073	1.073	13	e
1.076	1.092	1.080	1.080	1.084	1.070	1.083	1.090	1.080	1.081	1.081	1.081		

Numbers followed by the same letter are not significantly different at the 5% level using Duncan's multiple range test. Entries with no letters were not included in analyses due to incomplete representation at all sites.

WESTERN REGIONAL TABLE 8. AVERAGE TUBER SIZE, AND TUBER SHAPE

WESTERN REGIONAL TABLE 8. AVERAGE TUBER SIZE, AND TUBER SHAPE																											
No. Clone		Average Tuber Size (oz)										Tuber Shape (1-5 length/width ratio: 1=round, 5=long)															
		Early Trial					Late Trial					Early Trial					Late Trial										
		OR		TX		WA	ID		OR		WA		Mean	CA	OR		TX		WA	CA	CO		ID		OR		WA
		HRM	SPR	PAS	AB		KIM	HRM	OTH	KRN	HRM	MAL		SPR	PAS	Mean	TUL	SLV		AB	KIM	HRM	KLM	MAL	OTH		
1	R. BURBANK	5.5	4.5	6.6	5.5	7.4	10.3	7.5	7.3	8.1	3.5	5.0	4.3	5.0	3.3	4.2	4.0	5.0	4.8	4.0	5.0	5.0	4.3	4.0	4.5		
2	RANGER R.	6.4	6.0	7.3	6.6	10.2	11.6	12.3	10.2	11.1	3.0	4.7	3.5	5.0	3.7	4.0	4.5	5.0	5.0	5.0	5.0	5.0	3.8	4.5	4.7		
3	R. NORKOTAH	5.6	6.3	7.2	6.4	5.6	9.7	7.1	9.5	8.0	3.7	5.0	3.5	5.0	4.7	4.4	4.3	5.0	4.0	4.3	4.6	5.0	3.3	4.0	4.3		
4	SHEPODY	9.7	6.0	9.2	8.3	-	-	12.7	-	-	4.0	4.4	2.8	4.0	3.7	3.8	-	5.0	-	-	4.2	-	-	-	-		
5	A8893-1	6.1	5.9	6.8	6.3	7.8	9.6	7.9	8.7	8.5	4.0	3.9	2.8	5.0	3.3	3.8	3.5	4.0	3.8	3.8	3.7	3.5	2.8	4.0	3.6		
6	A9014-2	7.0	6.5	6.4	6.6	9.2	10.9	10.0	8.7	9.7	4.0	4.3	3.0	4.0	4.0	3.9	3.8	5.0	4.0	3.8	4.1	5.0	2.3	4.0	4.0		
7	A9045-7	8.2	5.3	7.4	7.0	11.2	12.5	11.9	12.2	11.9	4.0	4.0	2.3	5.0	4.0	3.9	4.0	4.0	4.3	4.0	3.9	5.0	2.3	4.3	4.0		
8	A90586-11	7.1	5.3	6.6	6.3	8.7	8.9	10.9	10.4	9.7	-	4.5	3.3	5.0	4.0	4.2	4.0	5.0	4.3	4.5	4.9	5.0	2.8	4.3	4.3		
9	AC87079-3	5.8	5.0	5.9	5.6	6.8	10.6	8.6	9.4	8.9	4.0	3.6	2.8	5.0	3.0	3.7	4.0	4.0	4.5	3.8	3.9	3.3	2.8	4.0	3.8		
10	AC87138-4	6.6	4.6	5.7	5.7	10.3	11.4	7.7	11.2	10.1	3.5	5.0	3.5	4.0	4.0	4.0	4.3	5.0	4.5	4.8	4.8	5.0	2.3	4.0	4.3		
11	AC89536-5	6.9	4.0	7.2	6.0	7.7	10.7	7.5	6.9	8.2	3.3	4.2	3.0	5.0	3.3	3.8	4.0	4.0	5.0	4.3	3.5	3.8	3.0	4.0	4.0		
12	AC91014-2	4.7	3.6	5.2	4.5	6.4	6.8	6.3	7.3	6.7	4.0	3.9	3.3	4.0	3.2	3.7	4.0	5.0	5.0	4.0	5.0	4.3	3.0	4.0	4.3		
13	AO92017-6	6.7	5.2	6.3	6.1	8.2	10.9	9.5	9.9	9.6	4.0	4.7	3.0	5.0	4.3	4.2	4.3	4.0	4.3	4.0	4.9	4.5	2.5	4.0	4.1		
14	ATX9202-3RU	8.3	6.2	6.9	7.1	7.0	13.8	9.3	8.2	9.6	2.8	3.4	2.0	5.0	3.0	3.2	3.5	4.0	3.3	3.5	3.6	4.5	2.0	3.0	3.4		
15	STAMPEDE R.	7.2	5.4	8.0	6.9	8.0	8.1	8.0	7.8	8.0	4.5	4.0	2.3	3.5	3.7	3.6	4.0	-	4.5	3.8	3.5	5.0	2.0	3.5	3.8		
16	TXNS102	5.3	5.5	6.7	5.9	6.6	10.3	8.6	8.7	8.6	-	5.0	3.3	5.0	4.0	4.3	4.0	-	4.5	4.0	4.6	5.0	3.0	4.0	4.2		
17	TXNS296	6.4	6.6	6.3	6.4	7.2	9.8	8.8	9.1	8.7	4.0	5.0	3.0	5.0	4.7	4.3	4.3	5.0	3.8	3.8	4.9	5.0	3.0	4.0	4.2		
Location Means		6.7	5.4	6.8	6.3	8.0	10.4	9.1	9.1	9.1	3.8	4.4	3.0	4.7	3.8	3.9	4.0	4.6	4.4	4.1	4.4	4.6	2.8	4.0	4.1		

WESTERN REGIONAL TABLE 9. EXTERNAL DEFECTS MEANS OF LOCATIONS - GROWTH CRACKS, SECOND GROWTH,

SHATTER BRUISE, AND SCAB¹

No. Clone	Growth Cracks		Second Growth		Shatter Bruise		Scab	
	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial
1 R. BURBANK	3.9 PAS 2.7	3.5 KIM 2.3	4.0	OTH 1.3 2.8 KIM 2.5	4.8	4.7	5.0	4.9
2 RANGER R.	4.6	3.9	4.7	4.1	4.8	4.7	5.0	4.7
3 R. NORKOTAH	5.0	4.7	4.5	4.9	4.9	4.6	5.0	5.0
4 SHEPODY	4.8	4.5	3.7 SPR 3.0	3.5	4.8	-	4.5	-
5 A8893-1	5.0	4.5	4.7	4.6	4.9	4.4	5.0	4.9
6 A9014-2	4.9	4.8	3.3 SPR 1.0	4.8	4.7	4.1	5.0	4.9
7 A9045-7	4.9	3.9 AB 2.8	4.3	4.2	4.9	4.7	5.0	4.8
8 A90586-11	4.9	4.5	4.6	3.5 OTH 1.5	4.9	4.6	4.8	4.3 AB 2.8
9 AC87079-3	4.7	4.6	4.7	4.2	4.8	4.5	5.0	4.9
10 AC87138-4	4.6	4.2	4.3 SPR 3.0	3.9	4.8	4.8	4.5	5.0
11 AC89536-5	4.6	4.4	4.3	4.4	4.4	4.5	5.0	4.9
12 AC91014-2	4.8	4.7	4.7	4.9	4.5	4.3	5.0	4.9
13 AO92017-6	4.9	3.9 OTH 1.5	4.7	4.0	4.9	4.8	5.0	4.9
14 ATX9202-3RU	4.8	3.9 SLV 2.0	4.8	4.5	4.8	4.2 MAL 2.8	5.0	4.9
15 STAMPEDE R.	3.7 HRM 2.5	4.3	4.6	4.8	3.9	HRM 1.0 3.3 MAL 2.8	4.9	4.8
16 TXNS102	4.8	4.8	4.7	4.7	4.8	4.8	5.0	4.9
17 TXNS296	4.9	4.8	4.7	4.6	4.8	4.8	5.0	4.9
Entry Means	4.7	4.3	4.4	4.2	4.7	4.5	4.9	4.8

¹All scores [1-5(none)]. Individual trial sites with extreme values are listed to the right of the entry means.

²Aberdeen shatter scores reflect dropping from shatter chamber [1-5(none)].

WESTERN REGIONAL TABLE 10. INTERNAL DEFECTS. MEANS OF LOCATIONS - HOLLOW HEART/BROWN CENTER,

INTERNAL BROWN SPOT, VASCULAR DISCOLORATION/NET NECROSIS, AND BLACKSPOT¹

No. Clone	Percent Hollow Heart Plus Brown Center		Percent Internal Brown Spot		Percent Net Necrosis/ Vascular Discoloration		Blackspot Bruise [1-5(none)]	
	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial
1 R. BURBANK	13	10 OTH 43	3	2	1	1	5.0	3.5 SLV 2.7
2 RANGER R.	0	0	6 KRN 25	0	32 SPR 90	1	5.0	3.7
3 R. NORKOTAH	0	4	6 KRN 25	0	4	1	4.8	4.5
4 SHEPODY	1	1	7 KRN 25	0	KRN 33 39 SPR 80	0	5.0	4.1
5 A8893-1	4	8 KLM 30	0	0	13 SPR 40	1	5.0	4.4
6 A9014-2	3	16 AB 83	2	0	7	1	5.0	3.9
7 A9045-7	5 SPR 20	1	6	0	17 SPR 50	0	5.0	3.8
8 A90586-11	0	1	0	1	10	2	5.0	4.4
9 AC87079-3	3	26 AB 70 KLM 70	5	0	12 SPR 30	8 TUL 25	5.0	3.4 SLV 2.9
10 AC87138-4	4	15 KLM 55	4	0	19 SPR 50	0	4.8	3.5
11 AC89536-5	0	8 OTH 28	4	0	4	0	5.0	4.3
12 AC91014-2	3	16 AB 48 KLM 35	3	0	0	0	5.0	4.1
13 AO92017-6	0	2	0	1	10 SPR 30	0	5.0	3.8
14 ATX9202-3RU	5 SPR 20	0	7	1	7	5	5.0	3.7
15 STAMPEDE R.	3	1	3	0	0	0	5.0	4.9
16 TXNS102	0	9 AB 38	0	0	15 SPR 30	0	5.0	4.6
17 TXNS296	3	5	3	0	12	1	5.0	4.6
Entry Means	3	7	3	0	12	1	5.0	4.1

¹Individual trial sites with extreme values are listed to the right of the entry means.²Aberdeen and Kimberly Idaho blackspot scores reflect abrasive peel test [1-5(none)].

WESTERN REGIONAL TABLE 12. DISEASE EVALUATION AND METRIBUZIN REACTION

No. Clone	Late Blight																	
	Vert. Wilt/Early Dying		Early Blight ¹ (0-9)	Corvallis ³		Mount Vernon ⁴		Common		% Leafroll		Prosser ⁵		EB Tuber %	Fusarium		Erwinia Soft Rot ¹ (0-5)	Metribuzin Reaction ⁷ AB
	AB ¹ (0-9)	HRM ² (1-9)		Foliar (1-9)	Tuber %	Foliar AUDPC	Tuber % by Wt.	Scab ¹ %	AB ¹ %	HRM ² HRM ²	Corky Rngspt	Root- knot	Dry Rot ^{1,6} F ₅₍₀₋₅₎ F _c					
1	R. BURBANK	8.8	6.5	6.0	8.0	10.0	578	0.0	0	6	45.0	S	S	0	2.1	4.3	3.7	R
2	RANGER R.	3.5	5.7	7.0	8.0	80.0	-	-	0	0	42.5	S	S	0	2.9	2.9	2.7	R
3	R. NORKOTAH	9.0	9.0	9.0	8.8	50.0	-	-	0	2	20.0	S	S	0	1.0	3.9	4.1	R
4	SHEPODY	5.3	7.2	8.8	-	-	-	-	3	0	45.0	S	S	0	1.5	1.2	4.1	S
5	A8893-1	9.0	8.2	8.0	9.0	22.5	548	1.7	0	2	37.5	S	S	17	1.0	1.5	4.1	R
6	A9014-2	3.8	4.7	8.0	8.5	22.5	573	1.5	0	3	0.0	R	S	0	1.2	1.3	2.1	R
7	A9045-7	2.5	6.0	7.0	7.3	7.5	355	0.8	2	0	37.5	S	S	0	3.7	2.7	3.9	R
8	A90586-11	2.3	4.2	6.3	4.5	12.5	285	0.2	10	3	27.5	R	S	0	2.6	3.5	3.6	R
9	AC87079-3	7.0	5.0	8.7	7.3	0.0	510	0.0	0	0	55.0	S	S	0	2.3	3.4	2.3	R
10	AC87138-4	4.3	4.2	7.5	8.3	22.5	500	0.0	0	0	22.5	S	S	33	1.7	3.4	3.1	R
11	AC89536-5	6.5	6.0	8.3	-	-	346	3.0	0	6	12.5	S	S	0	1.9	1.7	3.0	R
12	AC91014-2	6.5	7.2	8.5	9.0	17.5	565	0.1	0	-	20.0	S	S	-	-	-	2.7	R
13	AO92017-6	6.0	6.2	7.7	7.5	52.5	550	10.7	0	7	22.5	S	S	17	1.2	2.4	3.8	R
14	ATX9202-3RU	5.8	8.0	8.3	8.8	40.0	430	5.4	0	19	37.5	S	S	0	4.3	2.7	3.1	R
15	STAMPEDE R.	4.8	8.0	8.3	-	-	466	2.0	0	-	15.0	-	-	-	-	-	-	R
16	TXNS102	7.8	8.7	6.5	8.8	60.0	1066	1.4	0	9	50.0	-	-	0	1.0	2.3	3.1	-
17	TXNS296	7.5	8.7	8.0	8.8	37.5	428	0.6	0	8	27.5	-	-	0	1.0	1.8	3.7	-
Entry Means		5.9	6.7	7.8	8.0	31	514	2.0	0.9	4	30.4			4	2.0	2.6	3.3	
LSD (.05)		2.5		1.3			217		8.0						0.9	1.0	1.7	

¹ Evaluations made at Aberdeen. Idaho by Dennis Corsini: scale as indicated with highest number being most severe.

² Evaluations made at Hermiston, Oregon by Dan Hane: scale as indicated with highest number being most severe.

³ Evaluations made at Corvallis, Oregon by Al Mosley & Solomon Yilma: scale as indicated with highest number being most severe.

⁴ Evaluations made at Mount Vernon Washington by Debbie Ingalls: AUDPC = area under disease progress curve.

⁵ Evaluations made at Prosser Washington by Chuck Brown: R=resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible.

⁶ *Fusarium* species: *sambucinum* (F_s) and *solani* var. *coeruleum* (F_c)

7 Evaluations made at Aberdeen. Idaho by Steve Love: R=resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible.

WESTERN REGIONAL TABLE 13. SOLIDS, DEXTROSE, SUCROSE, PROTEIN, VITAMIN C,
AND GLYCOALKALOIDS - ABERDEEN

No. Clone	Solids		Sugars		Protein (%DWB) ¹	Vitamin C (mg/100g FWB) ¹	Glycoalkaloids ² (mg/100gFWB) ¹
	Oven Dry (%)	Dextrose (%FWB) ¹	Sucrose (%FWB) ¹				
1 RUSSET BURBANK	20.0	0.08	0.16		5.9	18.6	2.7
2 RANGER RUSSET	23.3	0.11	0.22		5.8	34.1	5.7
3 RUSSET NORKOTAH	19.7	0.08	0.13		5.7	23.5	3.3
5 A8893-1	22.0	0.07	0.19		7.3	25.2	6.9
6 A9014-2	23.8	0.05	0.39		6.8	31.7	1.8
7 A9045-7	23.7	0.11	0.17		5.0	25.6	1.6
8 A90586-11	24.2	0.10	0.21		5.3	37.6	3.9
9 AC87079-3	21.5	0.09	0.22		7.2	28.0	4.3
10 AC87138-4	22.4	0.13	0.20		5.6	23.7	4.3
11 AC89536-5	21.1	0.09	0.18		6.4	34.1	4.0
12 AC91014-2	23.9	0.05	0.28		7.6	35.0	3.0
13 AO92017-6	21.4	0.10	0.17		6.0	22.8	3.9
14 ATX9202-3RU	21.0	0.03	0.21		6.2	29.8	18.3
15 STAMPEDE RUSSET	19.4	0.07	0.14		5.2	26.6	2.0
16 TXNS102	20.6	0.07	0.17		5.9	22.0	2.2
17 TXNS296	21.1	0.09	0.15		5.9	20.7	2.6
Entry Means	21.8	0.08	0.20		6.1	27.4	4.4

¹ DWB = Dry Weight Basis; FWB = Fresh Weight Basis

² Glycoalkaloids: The 2001 Lenape check from Aberdeen was 25.7 mg/100g

WESTERN REGIONAL TABLE 14. MERIT SCORES [1-5(best)]

No.	Clone	Process										Fresh									
		CO					ID					OR					TX				
		SLV		AB		KIM	HRM		Entry	CA		CO		ID		OR		TX			
		L	L	E	L		E	L		L	E	L	E	L	E	L	E				
																		KRN	TUL	SLV	AB	KIM	HRM	SPR	Entry
		E	L	E	L		E	L	E	L	E	L	E	L	E	L	E	L	E	Mean/Rank	
1	R. BURBANK	2.0	2.3	3.0	2.0	2.0	1.0	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0	1.9	18				
2	RANGER R.	3.3	2.5	4.0	2.3	2.5	1.0	1.0	3.2	2.5	15										
3	R. NORKOTAH	3.8	4.0	2.0	3.3	4.0	4.0	4.0	3.4	3.6	4										
4	SHEPODY	3.7	-	5.0	-	-	1.0	1.0	2.8	2.7	12										
5	A8893-1	3.5	3.0	4.0	3.3	3.8	1.0	3.0	3.4	3.1	9										
6	A9014-2	3.0	3.8	3.0	3.5	4.0	4.0	4.0	3.7	3.6	2										
7	A9045-7	2.0	3.5	5.0	3.5	4.0	5.0	3.0	2.7	3.6	3										
8	A90586-11	-	2.0	5.0	2.0	2.0	1.0	2.0	2.8	2.4	17										
9	AC87079-3	3.5	3.3	2.0	2.8	3.0	2.0	2.0	2.4	2.6	14										
10	AC87138-4	3.0	3.0	5.0	3.0	2.0	5.0	4.0	2.5	3.4	8										
11	AC89536-5	3.0	4.5	5.0	3.8	4.0	3.0	2.0	2.9	3.5	5										
12	AC91014-2	3.5	4.3	3.0	3.3	3.0	2.0	1.0	2.6	2.8	11										
13	AO92017-6	3.0	2.8	2.0	1.8	3.0	2.0	2.0	2.9	2.4	16										
14	ATX9202-3RU	2.5	3.0	3.0	2.5	3.3	1.0	2.0	4.0	2.7	13										
15	STAMPEDE R.	-	4.0	-	4.3	4.0	3.0	2.0	3.4	3.5	7										
16	TXNS102	-	4.0	-	2.8	3.5	3.0	4.0	3.5	3.5	6										
17	TXNS296	-	3.5	3.0	2.5	4.3	5.0	4.0	3.6	3.7	1										
Location Means		3.1	3.3	3.6	2.9	3.3	2.6	2.5	3.0	3.0	3.0										

WESTERN REGIONAL TABLE 15. ENTRY SUMMARY¹

No.	Clone	Year in Trial	Use	Total Yield ²	US#1's Yield ²	% US#1's ²	Tuber Size (oz)		Tuber Shape	Specific Gravity ²	Fry 45 Color	Merit Score		Noted Problems	Disposition 2001
							Early	Late				Process	Fresh		
1	R. BURBANK	-	Dual	553	320	58	5.5	8.1	Long	1.081	1.7	2.9	1.9		Check
2	RANGER R.	-	Dual	623	458	75	6.6	11.1	Long	1.088	1.4	3.7	2.5		Check
3	R. NORKOTAH	-	Fresh	443	361	81	6.4	8.0	Long	1.071	1.8	2.0	3.6		Check
4	SHEPODY	-	Proc	415	312	76	8.3	-	Obl-Lng	1.077	-	2.0	2.7		Check
5	A8993-1	3	Dual	607	505	83	6.3	8.5	Obl-Lng	1.081	1.2	3.8	3.1	Early Dying EB - Tuber	Graduate
6	A9014-2	3	Dual	582	501	86	6.6	9.7	Obl-Lng	1.085	0.8	4.0	3.6	2nd Growth (Early), HH (Late)	Graduate
7	A9045-7	2	Dual	649	551	85	7.0	11.9	Obl-Lng	1.088	1.8	3.9	3.6	GC's (Late)	Continue
8	A90586-11	2	Dual	683	502	73	6.3	9.7	Long	1.090	1.7	4.1	2.4	2nd Growth (Late), Scab (Late)	Continue
9	AC87079-3	3	Fresh	599	484	80	5.6	8.9	Obl-Lng	1.088	1.2	2.7	2.6	HH (Late), NNVD, Blackspot	Graduate
10	AC87138-4	3	Dual	622	467	74	5.7	10.1	Long	1.084	1.3	3.6	3.4	HH (Late), Blackspot, Sugar Ends, EB-Tuber	Graduate
11	AC89536-5	2	Fresh	564	468	82	6.0	8.2	Obl-Lng	1.083	1.1	3.6	3.5		Continue
12	AC91014-2	1	Dual	432	312	72	4.5	6.7	Obl-Lng	1.088	0.8	3.7	2.8	Smaller tubersize, HH (Late)	Drop
13	AO92017-6	1	Dual	596	448	74	6.1	9.6	Long	1.083	1.5	3.7	2.4	GC's (Late), LB&EB-Tuber	Drop
14	ATX9202-3RU	2	Dual	592	496	83	7.1	9.6	Oblong	1.081	0.9	3.1	2.7	GC's (Late), Higher glyco's, NNVD, Fusarium (Fs)	Drop
15	STAMPEDE R.	1	Dual	547	464	84	6.9	8.0	Obl-Lng	1.067	1.7	1.0	3.5	Low gravity, GC's (Early), Shatter Bruise	Continue
16	TXNS102	3	Fresh	522	405	77	5.9	8.6	Long	1.072	1.6	2.1	3.5	LB - Tuber, NNVD	Graduate
17	TXNS296	3	Fresh	530	418	79	6.4	8.7	Long	1.073	1.8	1.8	3.7		Graduate
Entry Means				562	440	78	6.3	9.1		1.081	1.4	3.0	3.0		

¹ Numeric values represent means across all trial locations.² Data shown from late trial results, unless the entry was in the early trial only.

WESTERN REGIONAL TABLE 16. 3 YEAR SUMMARY OF GRADUATING ENTRIES

Clone	1999					2000					2001				
	Total Yield ¹ &(rank)	US #1 Yield ¹ & %	SG	Fry 45	Merit Score Fresh Proc	Total Yield ¹ &(rank)	US #1 Yield ¹ & %	SG	Fry 45	Merit Score Fresh Proc	Total Yield ¹ &(rank)	US #1 Yield ¹ & %	SG	Fry 45	Merit Score Fresh Proc
A8893-1	572 (5/14)	452 79	1.080	1.1	3.1 3.6	534 (8/14)	431 80	1.079	0.7	3.1 3.1	607 (5/16)	505 83	1.081	0.6	3.1 3.8
A9014-2	490 (11/14)	412 84	1.085	0.1	3.4 4.5	471 (12/14)	400 84	1.085	0.1	3.9 4.4	582 (9/16)	501 86	1.085	0.3	3.6 4.0
AC87079-3	534 (10/14)	415 78	1.087	1.2	2.6 2.3	463 (13/14)	364 77	1.084	1.4	3.2 2.3	599 (6/16)	484 80	1.088	1.2	2.6 2.7
AC87138-4	598 (2/14)	450 76	1.086	0.6	3.0 3.4	506 (9/14)	365 72	1.082	0.8	3.1 3.0	622 (4/16)	467 74	1.084	0.8	3.4 3.6
TXNS102	546 (9/14)	404 74	1.075	1.7	3.9 1.9	483 (10/14)	379 78	1.074	1.7	3.8 1.6	522 (14/16)	405 77	1.072	1.6	3.5 2.1
TXNS296	553 (8/14)	406 74	1.074	1.4	3.7 2.1	481 (11/14)	384 80	1.073	1.8	4.0 1.5	530 (13/16)	418 79	1.073	1.8	3.7 1.8
R. NORKOTAH	440 (12/14)	336 75	1.073	1.5	3.3 2.0	377 (14/14)	308 81	1.071	2.0	3.7 1.7	443 (15/16)	361 81	1.071	1.8	3.6 2.0
R. BURBANK	569 (6/14)	355 63	1.083	1.1	2.0 2.8	568 (5/14)	330 59	1.081	1.4	2.3 3.4	553 (11/16)	320 58	1.081	1.2	1.9 2.9
Trial Mean	536	414	1.082	1.2	2.8 2.8	529	410	1.082	1.2	3.3 2.9	572	448	1.081	1.5	3.0 3.0
		77					77					78			

3 Year Average (1999-2001)

Clone	3 Year Average (1999-2001)					Noted	
	Total Yield ¹ &(%ile) ²	US #1 Yield ¹ & %	SG	FRY 45	Merit Score Fresh Proc	Weaknesses (all three years)	
A8893-1	571 (59)	463 81	1.080	0.8	3.1 3.5		
A9014-2	514 (27)	438 85	1.085	0.2	3.6 4.3		
AC87079-3	532 (33)	421 78	1.086	1.3	2.8 2.4	Hollow Heart	
AC87138-4	575 (66)	427 74	1.084	0.7	3.2 3.3	Hollow Heart, Black-spot, Sugar Ends	
TXNS102	517 (26)	396 76	1.074	1.7	3.7 1.9		
TXNS296	521 (28)	403 78	1.073	1.7	3.8 1.8		
R. NORKOTAH	420 (7)	335 79	1.072	1.8	3.5 1.9		
R. BURBANK	563 (51)	335 60	1.082	1.2	2.1 3.0		
Trial Mean³	546	424	1.082	1.3	3.0 2.9		
		77					

¹ (CWT/A)² Percent of entries with lower yields;
e.g. 59% of all late trial entries over
three years, yielded lower than A8893-1.³ Late trial mean of all late trial entries 1999-2001

**United State Department of Agriculture
Agricultural Research Service,
Beltsville, MD and Presque Isle, ME**

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M. Bragg, B. Adams, and C. Lagasse

Objectives: The USDA potato breeding program at Beltsville has four main objectives: (1) to develop improved, pest-resistant germplasm and varieties; (2) to develop improved germplasm and varieties for processing; (3) to enhance germplasm for specific characteristics relating to pest resistance, yield, environmental stress, human nutrition and consumer acceptance; and, (4) to conduct statistical genetic studies in potato breeding.

Breeding: Hybridizations in the greenhouses at BARC were made among round, white-skinned, tetraploid *S. tuberosum* and 4x-2x *S. tuberosum* x *S. phureja*-*S. stenotomum* hybrid selections and varieties with either fresh market or processing potential, and resistance to late blight, early blight and common scab: true seeds were obtained from 269 combinations. Hybridizations were also made among red- or purple-skinned and white- or yellow-fleshed selections and varieties for specialty markets: true seeds were obtained from 78 combinations. Hybridizations were also made among russet-skinned or long-white type selections and varieties: true seeds were obtained from 249 combinations. True seeds were also obtained from 51 4x-2x crosses and 29 2x-4x crosses.

Yield and Processing Evaluations: Yield trials for the round whites (Tables 1-4), specialty market types (Table 6), and russets (Table 7) were conducted at Echo Lake. These were planted in a randomized complete block design with four replications of 25 hills on May 10-11, 2001. A yield trial of selections remaining from an early generation study with Craig Yenko at N.C.S.U. was planted on Chapman Farm on May 21, 2001 using the standard yield trial experimental design above (Table 5). Plants were spaced 9 inches with the row for all trials, except the russet trial, in which plants were spaced 12 inches within the row. After harvest, tubers from each plot were graded, specific gravity was determined by the weight in air and weight in water method, and the ten largest tubers from each plot were cut to determine the presence of internal defects. Tuber samples were stored at 50°F, 45°F, and 40°F. Tubers were processed out of 50°F, 45°F, 40°F, and following a

three week reconditioning period of 70°F from 40°F storage during January and February for the round white, specialty market and russet trials. For each combination of temperature and processing date, five tubers from each plot were processed (20 samples per clone).

Tuber samples from all yield trials including the russets were processed into potato chips by taking 1/16-inch slices from the cross section of each tuber. Slices were rinsed in water and placed on paper towels to remove excess moisture. Chips were then fried at 340°F in Primex vegetable shortening until bubbling ceased.

Most Promising Selections:

B0564-8: This selection continued to perform well as a direct-from-the-field chipper in the mid-Atlantic states. Yield and specific gravity were lower than Atlantic in Maine and in the mid-Atlantic states, but it showed very little internal heat necrosis.

B0766-3: This selection continued to perform well in the northern tier states. It chipped as well or better than Atlantic from storage into February. Yield and specific gravity were lower than Atlantic this year.

B1240-1: This selection yielded well this year, however, it produced unacceptably dark chips from all storage temperature, length of storage combinations. There is some interest in this selection for the organic gardening market.

B1870-17 and B1870-3: These selections yielded well this year, however, with very low specific gravity and unacceptably dark chip color, they will need to be considered only for fresh market. They have an attractive enough appearance to go fresh market.

B1884-9: This selection yielded well and sized up better than Atlantic. It also chipped as well as Atlantic this year, however, the specific gravity was lower than Atlantic.

B2001-186: This selection yielded and chipped as well as Atlantic this year, however, the specific gravity was lower than Atlantic. It had a longer dormancy than Atlantic

B1816-5: This is a purple-skinned, yellow-fleshed selection with an attractive appearance. The size

distribution was towards the small sizes with the drought and high temperatures this year. It may have a specialty niche market.

Disease Evaluations: Several named cultivars and advanced selection were evaluated for their reaction to common scab in *Streptomyces scabies* infected plots on Aroostook State Farm, Presque Isle, ME (Table 8). The scab plot was planted May 29 and harvested September 17, 2001. The experiment was planted as a randomized complete block design consisting of two replications. Each plot consisted of four hills spaced 9 inches within the row, in rows 36 inches apart. All tubers were harvested and scored individually for percent surface area covered using the Horsfall-Barratt rating scale and for the type of lesion (1=superficial, < 10 mm in diameter; 2=superficial, >10 mm in diameter; 3= raised, < 10 mm in diameter; 4= raised, > 10 mm in diameter; 5= pitted of all sizes). These individual scores were then summed over the plot and divided by 12 times the number of tubers to create an area index (AI) or five times the number of tubers to create a lesion index (LI). Clones were then grouped using cluster analysis on mean AI and LI into highly resistant, resistant, intermediate, susceptible, and highly susceptible categories (See Goth *et al.* Plant Disease 77:911-914).

Tornado Damage: In September a tornado ripped through Beltsville and the surrounding area. The greenhouses were essentially destroyed. The seedling generation was planted in the greenhouses when the tornado went through. The plants, though badly cut up and shredded by flying glass, grew out of the damage. Plastic was stretched over the gaping holes in the greenhouses so that the plants could continue to grow until maturity. Following harvest, what little was left of the greenhouses was torn down.

BARC Table 1. Yield, tuber size distribution, and quality characteristics of round whites harvested 130 days after planting on Aroostook State Farm in 2001.

Pedigree	Tuber Size Distribution											
	% Stand ¹	Mkt cwt/A	% Mkt	<1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	>4"	SG ²	HH ³	BC ³	INT ³
Atlantic	100	263	94	5.9	41.6	50.2	2.4	0.0	94	1	0	0
B0564-8	100	203	85	14.7	53.0	31.4	0.9	0.0	86	0	0	0
B0564-9	100	184	88	11.6	48.9	38.0	1.4	0.0	90	0	0	0
B0766-3	100	195	91	8.5	37.2	47.8	6.5	0.0	81	0	0	0
B1240-1	100	238	92	8.4	35.5	49.8	6.3	0.0	83	0	0	0
B1826-1	97	208	92	7.8	30.7	54.3	7.2	0.0	73	0	0	0
B1870-17	99	238	81	17.1	46.9	30.9	3.4	1.7	70	1	0	0
B1870-3	100	242	90	10.1	41.5	43.1	5.3	0.0	68	0	0	0
B1871-1	99	188	88	11.9	49.2	36.1	2.8	0.0	82	0	0	0
B2003-136	100	206	90	10.3	54.5	33.8	1.5	0.0	95	0	0	0
Coastal Chip	100	185	85	15.3	53.5	29.2	2.0	0.0	85	0	0	0
LSD (0.05)		50							0.3			

¹ percent stand on June 25, 2001

² 1.0 omitted

³ Total number of tubers with hollow heart (HH), brown center (BC) or internal defects (INT) out of 40.

BARC Table 1. Continued.

Temperature Date	50°F 1/9	45°F 1/10	40°F 1/11	40°-70°F 1/7	50°F 2/7	45°F 2/13	40°F 2/14	40°-70°F 2/5
Pedigree	Chip ⁴	Spt ⁵	Chip	Spt	Chip	Spt	Chip	Spt
Atlantic	7.4	M	7.5	VL	9.9	0	8.1	M
B0564-8	7.8	L	7.4	VL	10.0	0	8.7	S
B0564-9	8.0	S	7.7	M	9.9	0	9.4	S
B0766-3	7.4	L	7.0	VL	9.5	0	7.7	M
B1240-1	8.6	S	8.3	S	10.0	0	9.0	S
B1826-1	7.8	VL	7.5	VL	10.0	0	8.0	M
B1870-17	8.9	VL	8.7	VL	10.0	0	8.7	S
B1870-3	8.8	VL	9.1	VL	10.0	0	9.4	S
B1871-1	7.6	M	7.4	L	10.0	0	8.8	S
B2003-136	8.0	S	7.5	M	8.8	0	8.5	S
Coastal Chip	7.5	VL	7.4	VL	9.8	0	8.1	S

⁴ Chips 1-7 satisfactory⁵ Sprout 0 - no sprouts

S - <0.5"

M - 0.5" - 1.5"

L - 1.5" - 2.5"

VL- >2.5"

BARC Table 2. Yield, tuber size distribution, and quality characteristics of round whites harvested 130 days after planting on Aroostook State Farm 2001.

Pedigree	Tuber Size Distribution										Mkt cwt/A	% Stand ¹	% Mkt	<1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	>4"	SG ²	HH ³	BC ³	INT ³
Atlantic	100	300	91	9.0	36.9	48.4	5.6	0.0	92	0	0	1										
B1873-4	100	153	78	22.1	51.0	26.9	0.0	0.0	77	0	0	0										
B1873-6	96	146	81	19.2	44.8	32.7	3.3	0.0	85	0	0	0										
B1880-4	100	145	79	21.2	56.6	22.2	0.0	0.0	80	0	0	0										
B1880-6	100	177	78	22.3	56.0	21.8	0.0	0.0	81	0	0	0										
B1884-9	100	270	92	5.6	24.9	53.9	13.6	2.1	83	0	0	0										
B1956-86	100	131	53	47.4	48.3	4.3	0.0	0.0	80	0	0	0										
B1970-1	100	129	73	27.5	57.7	14.4	0.4	0.0	80	0	0	0										
BelChip	100	212	90	10.1	30.3	51.6	8.0	0.0	73	0	0	1										
LSD (0.05)		43							04													

¹⁻⁵ See BARC Table 1

BARC Table 2. Continued.

Temperature	50°F	45°F	40°F	40°-70°F	50°F	45°F	40°F	40°-70°F
Date	1/9	1/10	1/11	1/7	2/8	2/13	2/14	2/5
Pedigree	Chip ⁴	Spt ⁵	Chip	Spt	Chip	Spt	Chip	Spt
Atlantic	8.4	M	7.9	L	10.0	0	8.1	S
B1873-4	8.6	M	8.3	L	10.0	0	9.9	S
B1873-6	7.9	S	8.1	S	10.0	0	9.6	S
B1880-4	8.2	M	7.8	M	10.0	0	8.7	S
B1880-6	8.0	M	7.8	L	10.0	0	9.1	S
B1884-9	7.7	S	7.6	M	10.0	0	8.5	S
B1956-86	8.8	M	9.0	M	10.0	0	9.9	S
B1970-1	9.3	S	9.1	M	10.0	0	9.7	S
BelChip	8.9	M	8.6	L	10.0	0	9.3	S

BARC Table 3. Yield, tuber size distribution, and quality characteristics of round whites harvested 130 days after planting on Aroostook State Farm in 2001.

Pedigree	% Stand ¹	Mkt cwt/A	Tuber Size Distribution									
			% Mkt	<1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	>4"	SG ²	HH ³	BC ³	INT ³
Atlantic	100	273	95	5.2	34.2	50.8	9.7	0.0	93	0	0	2
B1971-11	100	195	89	11.3	46.6	38.5	3.6	0.0	76	1	0	0
B1971-5	100	139	75	25.5	60.6	13.1	0.8	0.0	84	0	0	0
Suncrisp	100	265	89	10.8	45.2	41.8	2.2	0.0	91	0	0	0
LSD (0.05)		56										03

¹⁻⁵ See BARC Table 1

BARC Table 3. Continued.

Temperature	50°F	45°F	40°F	40°-70°F	50°F	45°F	40°F	40°-70°F
Date	1/9	1/10	1/11	1/7	2/8	2/8	2/14	2/6
Pedigree	Chip ⁴ Spt ⁵	Chip Spt	Chip Spt	Chip Spt	Chip Spt	Chip Spt	Chip Spt	Chip Spt
Atlantic	7.8 M	7.5 VL	10.0 0	7.8 S	8.0 VL	8.0 VL	10.0 0	8.5 L
B1971-11	8.1 M	7.9 L	10.0 0	8.9 S	8.0 L	8.1 VL	10.0 0	9.1 S
B1971-5	8.2 M	8.0 L	10.0 0	8.1 S	8.1 VL	8.0 VL	10.0 0	8.7 L
Suncrisp	8.1 VL	7.4 VL	10.0 0	8.1 S	8.0 VL	8.0 VL	10.0 0	8.3 M

BARC Table 4. Yield, tuber size distribution, and quality characteristics of round whites harvested 126 days after planting on Aroostook State Farm in 2001.

Pedigree	Tuber Size Distribution											
	% Stand ¹	Mkt cwt/A	% Mkt	<1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	>4"	SG ²	HH ³	BC ³	INT ³
Atlantic	100	269	93	7.4	39.2	47.7	5.7	0.0	92	0	0	1
B1991-126	84	52	71	29.5	41.3	26.8	2.4	0.0	55	0	0	0
B1991-129	96	209	86	10.4	31.0	42.2	13.2	3.3	55	0	0	0
B1992-177	100	160	88	11.6	41.4	45.5	1.5	0.0	82	0	0	0
B2000-185	98	226	87	11.7	40.5	42.2	4.4	1.1	85	0	0	0
B2001-186	99	258	92	7.0	29.4	52.9	9.4	1.4	81	0	0	0
B2001-197	97	217	92	4.1	20.6	56.6	15.3	3.3	77	0	0	0
Snowden	100	156	74	26.3	57.4	15.5	0.7	0.0	88	0	0	0
LSD (0.05)		46							03			

¹⁻⁵ See BARC Table 1

BARC Table 4. Continued.

Temperature Date	50°F 1/8	45°F 1/10	40°F 1/11	40°-70°F 1/7	50°F 2/8	45°F 2/8	40°F 2/14	40°-70°F 2/6
Pedigree	Chip ⁴	Spt ⁵	Chip	Spt	Chip	Spt	Chip	Spt
Atlantic	7.5	L	7.4	VL	10.0	0	8.3	M
B1991-126	9.0	L	9.6	M	10.0	0	10.0	M
B1991-129	8.8	VL	8.9	VL	10.0	0	10.0	S
B1992-177	7.7	S	7.3	M	9.9	0	7.6	S
B2000-185	8.8	S	8.8	S	10.0	0	10.0	S
B2001-186	7.0	S	7.5	S	9.5	0	8.1	S
B2001-197	7.2	S	7.3	S	9.4	0	8.6	S
Snowden	7.3	M	7.0	M	9.9	0	7.0	S
								M

BARC Table 5. Yield, tuber size distribution, and quality characteristics of round whites harvested 118 days after planting on Chapman Farm in 2001.

Pedigree	Tuber Size Distribution									
	% Stand ¹	Mkt cwt/A	% Mkt	<1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	>4"	SG ²	HH ³
Atlantic	97	253	93	5.5	18.4	58.7	15.6	1.7	108	1
B1990-17	100	268	85	15.1	40.0	41.7	3.2	0.0	93	0
B1990-3	100	263	85	14.0	32.7	49.8	2.8	0.7	98	0
B1990-4	100	273	89	5.9	20.7	57.7	10.3	5.4	96	0
B1992-106	99	243	90	9.0	26.8	53.7	9.7	0.8	100	0
B1992-125	98	285	80	18.7	38.5	40.1	1.6	1.1	99	0
B1992-160	97	316	91	3.5	8.4	58.2	24.7	5.1	100	0
B1992-166	100	255	86	9.7	19.0	51.1	16.2	4.0	92	0
B1992-66	100	249	88	10.6	25.9	57.1	5.1	1.4	113	5
B1992-72	100	204	69	30.6	44.7	23.4	1.3	0.0	100	1
B1999-175	100	249	86	13.5	32.8	50.9	2.2	0.7	100	0
B2000-81	94	217	86	14.2	32.7	51.4	1.8	0.0	108	0
B2001-146	100	310	89	8.2	23.6	54.4	10.6	3.2	96	0
B2001-184	100	305	90	9.4	29.7	55.0	5.3	0.6	98	0
B2001-29	99	310	94	3.1	17.4	64.5	12.0	3.0	96	2
B2001-6	96	271	86	6.9	16.3	55.6	14.5	6.8	97	0
B2008-34	100	237	81	18.8	39.8	40.2	1.2	0.0	106	0
B2016-31	95	293	93	5.3	17.3	63.4	12.3	1.6	91	0
LSD (0.05)		40							05	

¹⁻⁵ See BARC Table 1

BARC Table 5. Continued.

Temperature Date Pedigree	50°F 1/9 Chip ⁴ Spt ⁵	45°F 1/10 Chip Spt
Atlantic	7.2 M	7.5 L
B1990-17	7.0 L	7.0 L
B1990-3	7.8 M	7.6 L
B1990-4	7.6 M	7.2 L
B1992-106	7.7 L	7.3 L
B1992-125	8.3 VL	7.8 L
B1992-160	8.0 M	7.3 M
B1992-166	8.1 L	7.9 VL
B1992-66	7.5 S	7.3 S
B1992-72	7.5 VL	7.1 VL
B1999-175	7.5 VL	7.2 VL
B2000-81	8.2 M	7.7 M
B2001-146	7.0 S	7.0 S
B2001-184	7.3 S	7.0 O
B2001-29	7.8 M	8.0 L
B2001-6	7.0 O	7.0 O
B2008-34	7.0 L	7.0 L
B2016-31	7.1 S	7.1 S

BARC Table 6. Yield, tuber size distribution, and quality characteristics of specialty market potatoes harvested 126 days after planting on Aroostook State Farm in 2001.

Tuber Size Distribution

Pedigree	% Stand ¹	Mkt cwt/A	% Mkt	<1 7/8"	1 7/8 - 2 1/4"	2 1/4 - 3 1/4"	3 1/4 - 4"	>4"	SG ²	HH ³	BC ³	INT ³
B0811-4	100	76	58	41.8	49.0	9.2	0.0	0.0	88	0	0	0
B0984-1	100	216	90	9.8	30.6	49.6	10.0	0.0	79	0	0	0
B1145-2	100	155	83	17.5	45.9	36.7	0.0	0.0	75	0	0	0
B1425-9	100	199	86	13.7	46.5	38.1	1.8	0.0	88	0	0	0
B1523-4	100	178	75	23.5	57.8	17.6	0.0	1.1	76	0	0	0
B1529-1	100	90	64	35.6	46.0	17.0	1.4	0.0	67	0	0	0
B1752-5	96	197	87	12.6	41.5	42.7	3.3	0.0	74	0	0	0
B1758-3	99	190	83	16.8	55.2	27.3	0.7	0.0	76	0	0	0
B1758-4	100	194	81	18.7	53.0	26.6	1.6	0.0	75	0	0	0
B1763-4	100	157	86	14.1	50.3	34.5	1.1	0.0	78	0	0	0
B1806-8	100	197	88	12.3	40.3	43.1	4.2	0.0	85	0	0	0
B1816-5	100	158	85	15.4	55.6	28.9	0.0	0.0	81	0	0	0
Red Pontiac	100	176	83	17.5	40.6	39.3	2.5	0.0	63	0	0	0
Yukon Gold	99	196	90	9.9	29.5	57.2	3.4	0.0	82	0	0	0
LSD (0.05)		54							03			

¹⁻⁵ See BARC Table 1

BARC Table 6. Continued.

Pedigree	50°F		45°F		40°F		40°-70°F		50°F		45°F		40°F		40°-70°F		Comments ⁶
Date	Chip ⁴	Spt ⁵	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	Chip	Spt	
B0811-4	7.3	S	7.2	M	10.0	O	8.3	S	7.5	VL	7.5	VL	10.0	O	8.1	S	red, yf
B0984-1	8.1	S	8.4	S	10.0	O	9.9	S	8.3	M	8.0	L	10.0	O	9.6	S	red
B1145-2	8.1	S	7.9	M	10.0	O	9.1	S	8.5	VL	8.2	VL	10.0	O	8.8	S	red
B1425-9	7.9	VL	7.8	L	10.0	O	8.5	S	8.2	VL	8.1	VL	10.0	S	9.0	L	yf
B1523-4	9.3	VL	9.5	VL	10.0	O	9.7	M	9.3	VL	9.6	VL	10.0	O	9.5	L	red
B1529-1	8.5	M	8.6	L	10.0	O	9.6	S	8.5	VL	8.6	VL	10.0	O	9.5	S	red
B1752-5	8.9	M	9.1	M	10.0	O	10.0	S	9.0	VL	9.0	VL	10.0	O	9.9	S	purple
B1758-3	8.5	S	8.7	M	10.0	O	9.8	S	8.9	L	8.7	VL	10.0	O	9.8	S	yf
B1758-4	9.0	S	8.9	M	10.0	O	10.0	S	8.8	L	8.8	L	10.0	O	9.7	S	red
B1763-4	7.9	M	8.0	M	10.0	O	9.6	S	8.3	VL	8.1	VL	10.0	O	9.5	S	red
B1806-8	7.2	L	7.2	L	10.0	O	8.2	S	7.8	VL	8.0	VL	9.8	O	8.1	M	yf
B1816-5	7.0	M	7.1	M	9.7	O	8.1	S	7.3	VL	7.3	VL	10.0	O	7.8	S	purple, yf
Red Pontiac	9.8	M	10.0	M	10.0	O	10.0	S	9.7	VL	10.0	VL	10.0	O	10.0	S	red
Yukon Gold	9.0	O	9.0	S	10.0	O	9.9	S	9.1	S	8.7	S	10.0	O	9.9	S	yf

LSD (0.05)

⁶ red = red-skinned

purple = purple-skinned

yf = yellow-flesh

BARC Table 7. Yield, tuber size distribution, and quality characteristics of russets harvested 126 days after planting on Aroostook State Farm in 2001.

Pedigree	% Stand ¹	Mkt cwt/A	Tuber Size Distribution							SG ²	HH ³	BC ³	INT ³
			% Mkt	<2 oz	2-6 oz	6-10 oz	10-16 oz	>16					
Amey	100	223	92	7.6	41.5	49.3	1.6	0.0	85	0	0	0	
B1933-3	100	207	87	12.6	54.0	33.5	0.0	0.0	84	0	0	0	
B1958-53	100	197	82	17.7	51.1	31.2	0.0	0.0	75	0	0	0	
B1960-18	100	121	89	11.1	44.5	38.6	5.9	0.0	85	0	0	0	
Russet Burbank	100	88	67	33.4	50.5	16.1	0.0	0.0	77	0	0	0	
LSD (0.05)		36							04				

¹⁻⁵ See BARC Table 1

BARC Table 7. Continued.

Temperature Date	50°F 1/8	45°F 1/8	40°F 1/8	40°-70°F 1/7	50°F 2/7	45°F 2/7	40°F 2/7	40°-70°F 2/6
Pedigree	Chip ⁴ Spt ⁵	Chip Spt	Chip Spt	Chip Spt	Chip Spt	Chip Spt	Chip Spt	Chip Spt
Amey	7.2 S	7.8 M	10.0 0	8.5 S	8.0 M	7.9 M	10.0 0	8.1 S
B1933-3	7.7 M	8.0 M	10.0 0	9.0 S	8.2 L	8.2 VL	10.0 0	9.2 M
B1958-53	8.0 S	8.7 S	10.0 0	9.5 S	8.0 M	8.0 M	10.0 0	9.0 M
B1960-18	7.4 M	7.9 M	10.0 0	8.8 S	8.0 L	8.0 L	10.0 0	8.5 S
Russet Burbank	8.0 S	8.8 0	10.0 0	9.1 S	8.5 S	8.2 S	10.0 0	8.5 S

BARC Table 8. Average surface area index (AI)¹ and lesion index (LI)² for potato clones evaluated in *Streptomyces scabies* infested soil on Aroostook State Farm in 2001, by clustering on mean AI and LI³.

Clone	AI	LI	Clone	AI	LI
Highly Resistant			Susceptible		
B2072-2	0.13	0.10			
B2072-4	0.15	0.17	B2066-1	0.41	0.62
B2078-1	0.11	0.06	B2074-4	0.31	0.66
B2079-6	0.09	0.02	B2074-6	0.42	0.66
B2098-2	0.12	0.11	B2093-2	0.46	0.70
B2099-6	0.11	0.15	B2133-124	0.38	0.70
B2101-9	0.10	0.09	B2135-163	0.37	0.71
Ontario	0.13	0.13	B2135-164	0.25	0.64
			B2135-168	0.31	0.63
			B2135-170	0.32	0.64
Resistant			Green Mountain	0.36	0.74
B2066-2	0.27	0.28			
B2077-1	0.19	0.23	Highly Susceptible		
B2078-13	0.18	0.30			
B2079-7	0.19	0.34	B0178-34	0.43	0.82
B2082-1	0.14	0.24	B2074-11	0.36	0.89
B2085-1	0.18	0.31	B2095-1	0.46	0.94
B2098-1	0.14	0.25	B2100-8	0.39	0.88
B2099-5	0.21	0.33	B2125-156	0.46	0.79
B2100-2	0.21	0.25	B2130-151	0.48	0.81
B2100-13	0.19	0.31	B2133-123	0.42	0.78
Pike	0.18	0.32	Chippewa	0.35	0.83
Russet Burbank	0.16	0.32			
			¹ Surface area index was calculated as:		
			$\frac{\sum_{i=1}^n (\text{Surface area infected})}{(12 \times \text{number of tubers})}; 0 \leq \text{AI} \leq 1.00$		
Intermediate			² Lesion index was calculated as:		
B2066-3	0.25	0.50	$\frac{\sum_{i=1}^n (\text{lesion severity})}{(5 \times \text{number of tubers})}; 0 \leq \text{LI} \leq 1.00$		
B2069-1	0.32	0.45	³ Mean AI and LI were subjected to cluster		
B2074-3	0.23	0.51	analysis using the unweighted pair-group		
B2078-5	0.24	0.43	method by arithmetic averages (UPGMA).		
B2079-3	0.25	0.42			
B2098-8	0.25	0.54			
B2098-11	0.25	0.45			
B2100-5	0.29	0.53			
B2100-7	0.22	0.42			
B2133-127	0.32	0.50			
B2136-167	0.21	0.46			
Superior	0.25	0.47			

COLORADO

D. G. Holm and P. F. Naranjo¹

Objectives

The primary objectives of the Colorado Potato Breeding and Selection Program are to develop new potato cultivars with increased yield, improved quality, resistance to diseases and pests, and tolerance to environmental stresses. Other objectives are to provide a basic seed source to growers for seed increase and commercial testing, and to evaluate promising selections for potential seed export.

The Colorado Potato Breeding and Selection Program emphasizes the development of dual purpose fresh and processing russets. The balance of the breeding effort in order of priority is devoted to developing reds, chippers, and specialty cultivars. The development of "low input" cultivars, primarily for reduced nitrogen and fungicide input has always been emphasized.

Over the last few years, a major emphasis has been placed on developing cultivars that are resistant to late blight (foliar and tuber). Areas with recent increased emphasis or new emphasis are: 1) developing cultivars immune to PVY; 2) developing cultivars with tuber resistance to dry rot (*Fusarium* and early blight) and bacterial soft rot; 3) identifying and incorporating breeding material demonstrating resistance to powdery scab; and 4) developing protocols to screen and evaluate advanced selections for reduced tuber greening potential and red skin color retention in storage. Continued emphasis will be placed on breeding for improved postharvest and processing qualities such as lengthened dormancy and ability to process after cold storage.

Breeding Program

Eighty-nine parental clones were intercrossed in 2001 in two separate crossing blocks. The emphasis of the first crossing block was disease resistance (late blight

and PVY) and the second emphasized cultivar development and virus resistance (PVX, PVY, and PLRV). Seed from 605 combinations was obtained. Approximately 45,000 seedling tubers representing 166 families were produced from 2000 crosses, for initial field selection in 2002. Second thru fourth size seedling tubers from these crosses were distributed to USDA-ARS (Aberdeen, ID and Beltsville, MD), Texas, Minnesota, and Alberta, Canada.

Selection Program

A total of 77,993 first year seedlings were grown. A portion of these seedlings tubers were obtained from Dr. Richard G. Novy, USDA-ARS, Aberdeen, Idaho; Dr. J. Creighton Miller, Texas A&M University, College Station, Texas; and Dr. Dermot Lynch, Agriculture Canada, Lethbridge, Alberta.

A total of 930 seedlings were selected for subsequent planting, evaluation, and increase in 2002. Another 1,074 clones were in 12-hill, preliminary, and intermediate stages of selection. Of these, 293 were saved for further observation. Thirty-nine advanced selections were saved at harvest and will be increased in 2002 pending final evaluations. Another 188 selections were maintained for germplasm development, breeding, other experimental purposes, or seed increases for other programs.

Field trials conducted in 2001 included: Preliminary Trial, Intermediate Yield Trial, Advanced Yield Trial, Southwestern Regional Trial, Western Regional Main Trial, Western Regional Red Trial, Western Regional Specialty Trial, San Luis Valley Chipping Study, and Western Regional Chipping Trial. Table 1 summarizes the cultural information for the trials conducted by the Potato Breeding and Selection Program at the San Luis Valley Research Center in 2001.

A total of 203 samples were evaluated for two or more of the following postharvest characteristics: blackspot susceptibility, storage weight loss, dormancy, enzymatic browning, specific gravity, french fry color, french fry texture, and chip color. Table 2 summarizes the procedures used for the postharvest evaluations for the trials.

Data for the Advanced Yield Trial (Tables 3-5), Advanced and Western Regional Red Trial (Tables 6-7), Advanced and Western Regional Specialty Trial

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(Tables 8-10), and the Advanced and Western Regional Chipping Trial (Tables 11-13) are included in this report. Results of the Southwestern Regional Trial and the Western Regional Main Trial are presented elsewhere in this publication.

Colorado advanced selections evaluated in the Southwest Regional Trials, Western Regional Trials, or by producers, included 11 russets (AC87079-3RU, AC87138-4RU, AC87084-3RU, AC89536-5RU, AC91014-2RU, AC92009-4RU, CO85026-4RU, CO92027-2RU, CO92077-2RU, NDC5372-1RU, and TC1675-1RU), 5 reds (CO86218-2R, CO89097-2R, CO93037-6R, DT6063-1R, and NDC5281-2R), and 3 chippers (AC87340-2W, AC89653-3W, and BC0894-2W).

Five selections (AC92009-2RU, CO92077-2RU, NDC5372-1RU, TC1675-1RU, and NDC5281-2R) are scheduled for initial grower evaluations in 2002. Comparative data for these selections and other advanced selections undergoing grower evaluation are presented in Table 14.

Advanced selections discarded from further evaluation were AC87079-3RU, AC87138-4RU, AC91014-2RU, CO92027-2RU, and AC89653-3W. The status of AC87084-3RU and AC87340-2W is pending further evaluations over the next year.

Upcoming releases include *Cherry Red* (DT6063-1R), *Fremont Russet* (CO85026-4RU), and *Durango Red* (CO86218-2R) and *BC0894-2W*. Plant Variety Protection was granted for Russet Norkotah Selections 3 and 8. Plant Variety Protection has been applied for Keystone Russet and Silverton Russet.

Colorado Table 1. Cultural management information for the 2001 trials at the San Luis Valley Research Center.

Location: San Luis Valley Research Center

Soil Type: Sandy Loam (Dunul cobbly sandy loam)

Date:

Planted - 5/16/01

Hilled - 5/31/01

Vines Killed - 8/31/01 (sulfuric acid - 28 gal/A)

Harvested - 9/25/01

Plot Information:

Size of Plots - 1 row x 25'

Spacing Between Hills - 12"

Spacing Between Rows - 34"

Hills Per Plot - 25

Number of Reps - 4

Method of Harvest:

Machine (Grimme 1-row)

Fertilizer:

Total applied - 118 lbs N + 60 lbs P₂O₅ + 40 lbs K₂O/A + 87 lbs S

5/09/01 - 80 lbs N + 60 lbs P₂O₅ + 40 lbs K₂O/A (liquid applied in-row)

7/04/01 - 6 lbs N + 13 lbs S (fertigated)

7/09/01 - 6 lbs N + 15 lbs S (fertigated)

7/10/01 - 6 lbs N + 15 lbs S (fertigated)

7/15/01 - 4 lbs N + 8 lbs S (fertigated)

7/19/01 - 9 lbs N + 20 lbs S (fertigated)

7/24/01 - 7 lbs N + 16 lbs S (fertigated)

Irrigation:

Center Pivot - 16.0" gross application (application frequency and amount based on ET)

Rainfall - 4.6"

Insecticides Applied:

7/12/01 - Leverage 2.7 (0.08 oz a.i./A)

7/26/01 - Leverage 2.7 (0.08 oz a.i./A)

8/11/01 - Leverage 2.7 (0.08 oz a.i./A)

Fungicides Applied:

7/18/01 - Quadris (0.1 lb a.i./A)

8/03/01 - Agri Tin 80WP (0.2 lb a.i./A)

7/28/01 - Super Tin 80WP (0.2 lb a.i./A)

8/11/01 - Bravo Weather Stik (0.9 lb a.i./A)

Herbicides Applied:

6/01/01 - Sencor 4 (0.1 lb a.i./A) + Eptam 7-E (3.9 lb a.i./A)

Colorado Table 2. General procedures used for postharvest evaluations.

Blackspot: Ten randomly selected tubers for each clone tested are bruised on the stem and bud ends with a 150 g weight dropped from a height of 60 cm. Tubers are stored at 40°F prior to bruising. After bruising, tubers are stored at room temperature for two or three days prior to evaluation. Blackspot susceptibility is evaluated by cutting the tubers in half longitudinally and rating the extent of damage. Blackspot is rated on a 1 to 5 scale, with 5 indicating no discoloration.

Storage Weight Loss and Dormancy: Ten randomly selected tubers are weighed and stored at 45°F for approximately a three month period under low relative humidity conditions to evaluate storage weight loss potential. These tubers are also observed weekly for sprout growth. Dormancy is reported as days after harvest to first visible sprout growth.

Enzymatic Browning: Five tubers of each clone are cut in half lengthwise and rated for degree of darkening 60 minutes later. Degree of darkening is rated on a 1 to 5 scale, with 5 indicating no discoloration.

Specific Gravity: Specific gravity is determined using the air/water method.

Fry Color and Texture: Fry color and texture is determined at or shortly after harvest and after a minimum of eight weeks of storage at 45°F. Fries are cooked for 3 ½ minutes at 375°F. Fry color is rated on a 0-4 scale using the USDA color standards. Color ratings ≤ 2 are acceptable. Fry texture is rated on a 1 to 5 scale, with 5 indicating that the cooked flesh was dry and mealy, with 1 representing a soggy, wet texture.

Chip Color: Chip color is determined after an interval of storage at 40° and 50°F and after reconditioning for three weeks at 60°F. Chips are cooked at 365°F until bubbling slows. Chip color is rated using the Snack Food Association 1-5 scale. Ratings ≤ 2.0 are acceptable.

Colorado Table 3. Yield, grade, tuber shape, and skin type for Advanced Yield Trial clones - 2001.

Clone	Yield (Cwt/A)					Tuber Shape ¹
	Total	US #1				
		Total	%	>10 oz	<4 oz	
AC90636-3RU	332	266	80.2	38	63	Ob
AC93026-9RU	464	344	74.1	78	113	Ob
AC93047-1RU	313	218	69.5	13	87	Ob
CO93001-11RU	410	325	79.3	71	69	Ob
CO93016-3RU	405	298	73.8	43	102	Ob
CO93024-2RU	390	294	75.3	66	42	Ob
CO94024-16RU	342	187	54.8	16	152	Ob
CO94035-15RU	431	363	84.1	98	59	L
CO94055-8RU	325	284	87.4	112	30	Ob
CO94084-12RU	367	306	83.1	87	46	Ob
Keystone Russet	444	394	88.7	145	44	L
Russet Norkotah	420	347	82.6	123	62	L
Russet Nugget	424	289	68.1	27	133	Ob
Silverton Russet	386	267	69.0	24	116	L
Umatilla Russet	486	361	74.0	71	116	L
Mean	396	303	76.3	67	82	
LSD ² (0.05)	54	53	6.2	42	24	

¹Tuber shape: Ob=oblong; L=long.

²LSD=least significant difference.

Colorado Table 4. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced Yield Trial clones - 2001.

Clone	Blackspot Index ¹			% Weight Loss ²	Dormancy (Days) ³	Enzymatic Browning ⁴
	Bud End	Stem End	Average			
AC90636-3RU	3.9	2.6	3.3	4.7	99	4.2
AC93026-9RU	4.5	2.5	3.5	7.4	134	4.2
AC93047-1RU	4.5	3.8	4.2	5.3	85	3.0
CO93001-11RU	4.9	3.8	4.4	7.8	64	1.6
CO93016-3RU	3.2	3.0	3.1	5.9	71	2.4
CO93024-2RU	1.9	2.5	2.2	5.3	78	1.6
CO94024-16RU	3.5	2.6	3.1	4.7	57	2.4
CO94035-15RU	4.2	2.9	3.6	4.8	85	5.0
CO94055-8RU	3.9	3.2	3.6	2.8	85	4.6
CO94084-12RU	3.1	2.5	2.8	3.5	85	4.2
Keystone Russet	5.0	5.0	5.0	4.2	57	4.8
Russet Norkotah	4.8	4.8	4.8	4.6	78	2.6
Russet Nugget	4.8	2.2	3.5	3.0	85	4.2
Silverton Russet	3.9	4.2	4.1	8.1	57	4.0
Umatilla Russet	4.6	3.2	3.9	5.3	99	1.8

¹Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

²Tubers were stored at 45°F for 115 days.

³Days from harvest to first visible growth. Tubers were stored at 45°F.

⁴Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Colorado Table 5. Specific gravity, french fry color, and texture for Advanced Yield Trial clones - 2001.

Clone	Specific Gravity	Fry Color ¹		Fry Texture ²	
		At Harvest	3 wks 50°F+ 9 wks 45°F	At Harvest	3 wks 50°F+ 9 wks 45°F
AC90636-3RU	1.087	1	2	3	4
AC93026-9RU	1.090	2	3	3	3
AC93047-1RU	1.078	1	2	4	2
CO93001-11RU	1.075	1	1	2	3
CO93016-3RU	1.086	1	3	4	3
CO93024-2RU	1.086	2	2	4	2
CO94024-16RU	1.074	1	3	5	4
CO94035-15RU	1.086	1	1	3	3
CO94055-8RU	1.070	1	2	2	2
CO94084-12RU	1.078	0	3	4	2
Keystone Russet	1.082	2	3	4	3
Russet Norkotah	1.078	1	3	3	2
Russet Nugget	1.098	1	1	4	3
Silverton Russet	1.080	1	3	3	2
Umatilla Russet	1.097	2	2	2	3

¹ Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

² Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Colorado Table 6. Yield, grade, tuber shape, and skin type for Advanced and Western Regional Red Trial entries - 2001.

Clone	Yield (Cwt/A)					Tuber Shape ¹
	Total	US #1			<4 oz	
		Total	%	>10 oz		
A92657-1R	340	291	85.8	93	35	R
CO86218-2R	490	375	76.9	93	107	R
CO89097-2R	525	441	83.6	172	60	Ov
CO94019-1R	420	310	73.6	57	105	R
CO94065-2R	499	253	50.9	26	241	R
CO95077-3R	291	38	13.2	0	253	R
DT6063-1R	452	354	78.0	79	89	Ov
NDC5281-2R	363	132	36.2	0	229	Ov
NDC6184-3R	307	92	29.8	0	211	R
NDO4323-2R	465	305	65.6	28	134	R
NDTX4271-5R	477	360	75.5	68	111	Ov
VC1075-1R	497	255	50.8	16	242	R
W84-75R	369	15	4.2	0	353	R
Norland-DR	436	340	78.1	42	93	Ov
Red LaSoda	543	459	84.2	165	70	Ov
Sangre-S10	540	472	87.6	161	63	Ov
Mean	438	281	60.9	63	150	
LSD ² (0.05)	59	61	7.7	37	37	

¹Tuber shape: R=round; Ov=oval.

²LSD=least significant difference.

Colorado Table 7. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Red Trial entries - 2001.

Clone	Blackspot Index ¹			% Weight Loss ²	Dormancy (Days) ³	Enzymatic Browning ⁴
	Bud End	Stem End	Average			
A92657-1R	3.3	2.2	2.8	9.1	78	2.2
CO86218-2R	4.3	2.9	3.6	5.1	92	1.4
CO89097-2R	3.3	3.6	3.5	6.8	71	4.2
CO94019-1R	1.9	1.2	1.6	5.5	99	1.0
CO94065-2R	3.6	3.6	3.6	6.4	113	4.0
CO95077-3R	3.7	3.2	3.5	8.1	85	1.8
DT6063-1R	4.5	4.4	4.5	5.3	78	4.6
NDC5281-2R	2.8	1.8	2.3	8.7	71	1.0
NDC6184-3R	2.9	1.9	2.4	8.2	50	2.0
NDO4323-2R	1.9	1.8	1.9	5.6	92	2.2
NDTX4271-5R	2.5	1.9	2.2	7.2	85	1.8
VC1075-1R	2.5	3.2	2.9	6.6	85	4.2
W84-75R	2.0	2.0	2.0	7.6	78	2.8
Norland-DR	2.4	3.5	3.0	6.2	57	3.4
Red LaSoda	3.2	3.6	3.4	4.3	92	1.2
Sangre-S10	3.7	3.9	3.8	3.5	78	2.8

¹ Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

² Tubers were stored at 45°F for 115 days.

³ Days from harvest to first visible growth. Tubers were stored at 45°F.

⁴ Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Colorado Table 8. Yield, grade, tuber shape, and skin type for Advanced and Western Regional Specialty Trial entries - 2001.

Clone	Yield (Cwt/A)					Tuber Shape ¹
	Total	US #1			<4 oz	
		Total	%	>10 oz		
CO94165-3P/P	451	203	43.6	15	244	Ob
CO94183-1R/R	387	261	67.2	9	116	Ov
CO94222-6RU/Y	346	164	47.2	8	177	Ob
TX1523-1RU/Y	417	322	77.1	31	88	Ov
TX1674-1W/Y	381	267	69.6	46	92	Ob
VC0967-2R/Y	448	320	71.1	22	119	Ov
VC0967-5R/Y	435	352	80.8	76	71	Ov
VC1002-3W/Y	416	163	39.0	21	252	R
VC1009-1W/Y	558	421	75.3	96	129	Ob
VC1015-1R/Y	537	415	76.9	78	114	Ob
VC1015-7R/Y	432	342	79.0	40	89	Ov
All Blue	463	296	63.6	50	159	Ob
Yukon Gold	389	319	81.6	103	66	Ov
Mean	435	296	67.1	46	132	
LSD ² (0.05)	61	68	8.1	28	24	

¹Tuber shape: R=round; Ov=oval; Ob=oblong.

²LSD=least significant difference.

Colorado Table 9. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Specialty Trial entries - 2001.

Clone	Blackspot Index ¹			% Weight ² Loss	Dormancy ³ (Days)	Enzymatic Browning ⁴
	Bud End	Stem End	Average			
CO94165-3P/P	---	---	---	4.5	78	---
CO94183-1R/R	3.1	2.6	2.9	4.9	85	---
CO94222-6RU/Y	4.2	3.0	3.6	5.1	57	3.8
TX1523-1RU/Y	4.0	1.4	2.7	4.3	78	4.4
TX1674-1W/Y	4.2	3.3	3.8	4.1	78	4.0
VC0967-2R/Y	2.4	2.4	2.4	5.0	78	4.0
VC0967-5R/Y	3.7	2.5	3.1	3.5	127	3.6
VC1002-3W/Y	4.3	4.4	4.4	3.7	99	4.6
VC1009-1W/Y	3.0	2.6	2.8	3.6	92	4.0
VC1015-1R/Y	1.3	2.1	1.7	3.2	92	4.0
VC1015-7R/Y	3.6	3.6	3.6	4.9	85	4.6
All Blue	3.6	2.5	3.1	3.3	99	---
Yukon Gold	4.1	3.3	3.7	2.8	99	3.8

¹Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

²Tubers were stored at 45°F for 115 days.

³Days from harvest to first visible growth. Tubers were stored at 45°F.

⁴Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Colorado Table 10. Specific gravity, french fry color, and texture for Advanced and Western Regional Speciality Trial entries - 2001.

Clone	Specific Gravity	Fry Color ¹		Fry Texture ²	
		At Harvest	3 wks 50°F+ 9 wks 45°F	At Harvest	3 wks 50°F+ 9 wks 45°F
CO94165-3P/P	1.082	---	---	---	---
CO94183-1R/R	1.081	---	---	---	---
CO94222-6RU/Y	1.098	2	2	3	3
TX1523-1RU/Y	1.083	1	1	3	1
TX1674-1W/Y	1.092	2	2	4	3
VC0967-2R/Y	1.076	1	1	2	2
VC0967-5R/Y	1.082	1	1	2	3
VC1002-3W/Y	1.098	1	1	3	3
VC1009-1W/Y	1.092	1	1	3	2
VC1015-1R/Y	1.084	2	3	1	2
VC1015-7R/Y	1.076	2	3	1	2
All Blue	1.084	-	-	3	3
Yukon Gold	1.079	1	4	3	3

¹Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

²Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Colorado Table 11. Yield, grade, tuber shape, and skin type for Advanced and Western Regional Chipping Trial entries - 2001.

Clone	Yield (Cwt/A)					Tuber Shape ¹
	Total	US #1				
		Total	%	>10 oz	<4 oz	
A90490-1	560	452	80.4	142	77	R
A91790-13	515	308	58.9	57	199	R
AC87340-2W	486	360	74.0	60	124	R
AC89653-3W	450	277	61.1	31	170	R
AC94296-5W	449	259	57.9	15	179	R
AC94324-1W	413	289	70.2	49	104	Ov
CO94027-6W	320	122	37.9	5	197	R
CO94032-3W	315	149	46.9	5	162	R
CO95031-2W	467	322	69.1	33	139	Ov
CO95051-7W	372	295	79.1	28	75	R
CO95070-7W	350	176	50.3	10	173	R
CO95117-8W	307	177	57.7	2	127	R
NDC6084C-2W	377	233	61.3	31	141	R
NDTX4930-5W	432	355	81.9	82	68	Ov
NY112	506	428	84.1	124	71	R
W1313	424	260	61.3	14	159	R
W1355-1	385	91	23.6	0	294	R
Atlantic	475	382	80.4	100	57	Ov
Chipeta	551	466	84.6	160	44	R
Mean	429	284	64.2	50	135	
LSD ² (0.05)	62	67	9.2	35	37	

¹Tuber shape: R=round; Ov=oval.

²LSD=least significant difference.

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Colorado Table 12. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Chipping Trial entries - 2001.

Clone	Blackspot Index ¹			% Weight Loss ²	Dormancy (Days) ³	Enzymatic Browning ⁴
	Bud End	Stem End	Average			
A90490-1	3.2	3.6	3.4	4.0	85	4.0
A91790-13	4.1	3.3	3.7	4.8	92	3.0
AC87340-2W	3.0	2.7	2.9	5.0	71	3.4
AC89653-3W	4.3	3.4	3.9	4.9	64	4.0
AC94296-5W	4.6	3.8	4.2	4.9	99	4.4
AC94324-1W	4.0	3.1	3.6	4.3	85	4.6
CO94027-6W	2.2	1.7	2.0	8.9	85	4.0
CO94032-3W	2.4	2.7	2.6	6.9	78	4.4
CO95031-2W	1.9	1.1	1.5	4.8	71	2.6
CO95051-7W	3.1	1.7	2.4	7.4	71	2.4
CO95070-7W	3.7	1.4	2.6	5.8	71	3.2
CO95117-8W	3.1	1.8	2.5	4.2	113	4.0
NDC6084C-2W	1.8	1.4	1.6	10.5	71	2.0
NDTX4930-5W	2.8	1.7	2.3	3.5	78	4.0
NY112	2.4	2.0	2.2	5.4	85	2.6
W1313	3.8	3.9	3.9	6.7	85	4.6
W1355-1	1.5	1.4	1.5	6.0	71	1.8
Atlantic	2.7	2.0	2.3	5.8	78	4.4
Chipeta	2.2	1.5	1.9	3.5	92	4.4

¹ Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

² Tubers were stored at 45°F for 115 days.

³ Days from harvest to first visible growth. Tubers were stored at 45°F.

⁴ Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Colorado Table 13. Chip color¹ after various storage regimes and specific gravity of Advanced and Western Regional Chipping Trial entries - 2001.

Clone	Specific Gravity	7 wks 40°F	7 wks/40°F +3 wks/60°F	7 wks 50°F	7 wks/50°F +3 wks/60°F
A90490-1	1.087	5.0	3.5	2.0	2.5
A91790-13	1.093	3.5	1.5	1.0	1.5
AC87340-2W	1.093	4.0	2.0	1.0	1.5
AC89653-3W	1.098	4.0	3.5	1.5	2.5
AC94296-5W	1.101	3.0	3.0	1.5	2.0
AC94324-1W	1.095	4.0	3.0	1.0	3.0
CO94027-6W	1.084	2.5	2.0	2.0	2.5
CO94032-3W	1.097	2.5	1.5	1.0	2.5
CO95031-2W	1.108	3.5	2.0	1.5	2.5
CO95051-7W	1.107	3.0	1.5	1.5	1.5
CO95070-7W	1.088	3.5	2.5	2.0	1.5
CO95117-8W	1.098	4.5	3.5	2.0	1.0
NDC6084C-2W	1.091	2.5	2.5	1.5	1.0
NDTX4930-5W	1.092	2.5	2.5	1.0	1.5
NY112	1.097	3.0	2.0	1.0	2.0
W1313	1.103	2.5	2.5	2.5	3.0
W1355-1	1.093	2.5	1.5	2.0	2.5
Atlantic	1.101	4.0	3.0	1.0	2.0
Chipeta	1.097	5.0	3.0	1.5	2.0

¹ Chip color was rated using the Snack Food Association 1-5 scale. Ratings of ≤ 2.0 are acceptable.

Colorado Table 14. Summary comparison of advanced selections and named cultivars for yield, grade, maturity, specific gravity, and grade defects - 2001.

Clone	Usage ¹	# Trials	Total Yield (Cwt/A)	% US #1	Vine Maturity ²	Specific Gravity	% External Defects ³	% Hollow Heart ⁴
Russets								
CO85026-4RU	FM	12	376	88.5	3.5	1.086	3.3	0.0
AC87084-3RU	Dual	8	509	89.2	3.4	1.093	2.8	0.3
AC89536-5RU	FM	6	496	82.1	3.2	1.083	2.9	0.3
AC92009-4RU	FM	4	345	89.5	3.1	1.092	1.1	0.0
CO92077-2RU	FM	4	387	75.1	2.8	1.076	0.9	0.1
NDC5372-1RU	Dual	4	421	74.8	3.1	1.083	2.8	0.1
TC1675-1RU	Dual	4	418	73.0	3.2	1.089	3.8	0.2
Centennial Russet	FM	35	294	77.4	3.0	1.080	0.8	0.3
Russet Norkotah	FM	39	355	83.8	1.8	1.077	2.1	0.4
Russet Nugget	Dual	40	410	79.2	3.8	1.091	1.6	0.2
Reds								
CO86218-2R	FM	12	423	81.2	3.0	1.076	1.6	0.2
DT6063-1R	FM	8	459	85.7	2.8	1.081	2.9	0.4
CO89097-2R	FM	7	497	83.0	2.9	1.081	2.9	0.3
NDC5281-2R	FM	4	386	46.5	2.1	1.085	0.8	0.0
Sangre	FM	21	460	85.6	3.0	1.072	1.6	1.0
Chippers								
BC0894-2W	Chip	11	389	83.1	2.3	1.080	1.3	0.0
AC87340-2W	Chip	7	477	78.5	3.3	1.083	0.9	0.3
Atlantic	Chip	19	435	86.5	3.2	1.096	2.5	4.2
Chipeta	Chip	19	497	82.6	3.3	1.088	5.8	0.4

¹ FM=fresh market; Dual= indicates a clone with both fresh market and processing potential.

² Vine maturity: 1=very early; 2=early; 3=medium; 4=late; 5=very late.

³ Includes defects such as second growth, growth crack, misshapen, and green.

⁴ Based on tubers greater than 10 ounces.

IDAHO

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Evaluations on breeding selections in 2001 included variety trials, herbicide screening, culinary tests, and disease screening. Market types included in the evaluations were long russets (or white processing types), chippers, and reds.

Variety Releases

Release applications are in progress for Ivory Crisp (NDO1496-1), a cross of ND292-1 and A77268-1, and Alturas (A82360-7), a cross of A77182-1 and A75188-3. A84118-3 is being considered for release as Summit Russet, a cross of A77236-6 and TND329-1Russ.

Replicated Variety Trials

Seven potato variety trials were conducted in 2001 in farmers' fields at Rexburg and Shelley, and Experiment Station sites at Aberdeen and Kimberly, Idaho (Tables 1-7). Rexburg is located in the high elevation area of eastern Idaho and has the coolest and shortest growing season (approximately 120 days between potato planting and harvest) of the four sites. Shelley and Aberdeen are located along the Snake River in Eastern Idaho, are slightly warmer and have a growing season of approximately 130 days. Kimberly is located in South-central Idaho and has a 140-day growing season for potatoes.

The trials were planted between April 26 and May 16 and harvested between September 19 and October 12. Crop management practices were typical of those used in the region in which the trial was located. All trials were planted using a randomized complete block design with either four or six replications. Plots consisted of single rows, twenty feet long.

Following harvest, tubers were weighed, graded, and sampled for internal quality evaluations. Depending on the specific objectives of the trial, samples were taken for evaluation of blackspot and shatter bruise susceptibility, presence of internal defects, specific gravity, and french fry color.

Weather in the Aberdeen area was characterized by a warmer than normal spring with 5 days over 90° F in early July prior to row closure. The 2001 growing season with hot early season temperatures contributed to heat stress symptoms on some varieties. South-central and eastern Idaho had similar growing seasons.

Five of the seven trials were conducted to evaluate dual purpose russet or long-white, processing selections (Tables 1-5). Two were conducted to evaluate chipping selections (Tables 6, 7).

The trials grown in Rexburg and Shelley included standard and new varieties as well as the most advanced breeding selections from the Aberdeen program (Tables 1, 2). In the Rexburg trial, environmental or cultural practice conditions greatly affected stand and yield and does not give an accurate representation of these entries' performance. The highest yielding line in the Rexburg trial was Alturas.

In the Shelley trial, poor seed quality (PVY and soft rot) affected yields of A9014-2. A9045-7 and A93157-6LS were the highest yielding selections, while A9014-2 was the lowest (Table 2). A84118-3 had the highest percentage of US No. 1 tubers and the highest specific gravity. A93157-6LS and A9014-2 had the lightest USDA grade scores out of 40 and 45° F storage. A93157-6LS and A90586-11 had a high susceptibility to blackspot bruise.

The Tri-state trial represents the stage of evaluation beyond the advanced yield trials and includes locations in Oregon and Washington. In the Idaho location of this trial, most selections had yields similar to or higher than Russet Burbank (Table 3). A9305-10 and A91814-5 had the highest yield. All selections had higher percentage of US No. 1's than Russet Burbank. A9304-3 had a high percentage of tubers > 12oz. A93157-6LS had blackspot bruise potential equal to or worse than Ranger Russet. A93157-6LS and A91814-5 had the lightest USDA grade scores out of 40 and 45° F storage.

Advanced russet selections were grown at Aberdeen and Kimberly (Tables 4, 5). A92294-6 had very high yields, high specific gravity, and excellent fry color out of 40 and 45° F storage at both locations. A9538-14LB and A94020-3 had a very high percentage of US No. 1's in addition to having very

good fry color out of 40 and 45° F storage at Aberdeen. A9305-5 and A93445-5 showed incidences of hollow heart.

In the Idaho location of the Western Regional chipping trial, NY112, one of the National Trial entries, had the highest yield followed by A90490-1, A91790-13, and Chipeta (Table 6). A91790-13 had high specific gravity, lack of internal defects, and chipped well out of 40° F storage and showed good reconditioning ability. AKM94026-7 had the highest specific gravity in the trial and the best fry color after reconditioning, but had low yield.

In the advanced selection chipping trial, A91790-13 and A96734-4 had good combination of yield, size, specific gravity, and chip color (Table 7). Chipeta had the highest yield of all the entries in the trial. A96727-7 had a high percentage of hollow heart. COA96141-2 and Ivory Crisp also showed good cold chipping potential, but had lower yield than Chipeta.

Sensory Evaluations

Five advanced breeding selections were compared to Russet Burbank in blind sensory evaluations of baked tubers. The evaluations were conducted at the Bingham County Extension Office by University of Idaho home economists. Tubers were baked in a convection oven and rated by trained panelists for color, texture, flavor, and overall quality. The evaluations were conducted twice, once within a month of harvest and again after five months of storage at 40°F.

In the fall evaluation, AO87277-6 had the highest ratings in all categories. A9014-2 was rated significantly lower for all categories (Table 9).

In the spring evaluation, AO87277-6 again had the highest rating in all categories. AO87277-6 out-rated Russet Burbank for baked quality characteristics except for color and texture where it was equal. A9014-2 moved from the lowest rated at harvest to equal to Russet Burbank in the spring. A9045-7 and A90586-11 dropped to lowest ratings after storage.

Metribuzin Screening

Nine varieties and thirty-one breeding selections (mainly those entered into northwest and western regional variety trials) were tested for response to

the herbicide metribuzin (Sencor®/Lexone®). Estimations were made for percent foliar injury and measurements taken for vigor following a postemergence (8-10 inch plants) application of metribuzin at the rate of 1.0 lb a.i./A. This rate is slightly above the highest allowable labeled rate. Percent yield loss for each clone, as a result of the application, was predicted using a model that incorporates injury and vigor as inputs. Each variety or selection was assigned a relative resistance score based on yield loss in comparison with varieties of known response.

The application was made in the morning when wind conditions were favorable using a CO₂ backpack sprayer with hand held boom. Environmental conditions were conducive to injury, with cloudy conditions the day previous to the day of application. Many of the clones showed signs of injury, but were able to recover with little projected yield loss. The level of injury observed was highest for susceptible varieties such as Shepody (Table 9). Most of the russet and long-white selections were resistant to injury except for Shepody, PA95A11-14, and A91814-5 which were moderately susceptible.

The chipping and round white selections were mildly to very resistant, with all the selections ranking more resistant than Atlantic.

Of the red lines, NDC5281-2 was rated susceptible and all other reds resistant to injury.

Late Blight Screening

Arrangements were made with Al Mosley, Oregon State University, to screen breeding material for late blight resistance at Corvallis, Oregon. Artificial inoculations were used to augment natural infection. Disease response was measured as a rating value that represented the percentage of defoliation. In addition, the amount of tuber rot before and after storage was documented.

A wide range of responses to late blight was found among the clones screened (Table 10). The selection with the highest resistance to foliar blight was A90586-11. All other selections showed > 70% injury on the second observation date. Tuber infection range also varied with A91790-13 and A91814-5 having the highest percent of tuber infection. AC87079-3 and AC92009-4Ru did not show any tuber infection at all. Umatilla, A9045-7,

Russet Burbank, and A93116-2 had less than 10% tuber infections.

Reaction to Field Diseases

Potato varieties in the Tri-state, Western Regional Russet, Western Regional Chipping Trials, along with miscellaneous selections and varieties (Table 11) were evaluated for resistance to verticillium wilt, early blight, and common scab. These evaluations were made under the natural exposure conditions of the respective trials.

In the Tri-state trial the varieties A92030-5 and PA95A11-14 were the most susceptible to verticillium wilt. A91814-5 was the most susceptible to common scab.

Selections of notice from the Western Regional Trial, show A90586-11 was the most susceptible to common scab. AC87138-4 was the most susceptible to tuber early blight.

In the Regional Chip Trial A91790-13 and Chipeta were the most resistant to early dying. Atlantic was the most resistant to common scab.

Summary of Promising Breeding Selections

Alturas (A82360-7): This oval, lightly russetted clone was developed specifically for dehydration purposes and selected for maximum dry matter yield. It is the result of a cross between A77182-1 (Atlantic x Lemhi Russet) and A75188-3. It was released as Alturas in 2001. Alturas has shown potential for dehydration, as well as french fry production, although its short shape may limit its potential for this market. It had good fry color out of 40 and 45° F storage from Rexburg, Aberdeen, and Kimberly trials (Tables 1, 3, and 4). Alturas was the highest yielding clone in Shelley (Table 2) and the second highest yielding clone at Kimberly (Table 5).

Bannock Russet: The experimental designation for this variety was A81473-2. It was released in 1999. It is an oblong russet with a very late and disease resistant vine. It is the result of a cross between A75175-1 (Targhee x A67490-3) and A75188-3. Bannock Russet was grown at Rexburg and Shelley in 2001 (Tables 1, 2). In each case, it performed very well for yield and quality in comparison with Russet Burbank.

Gem Russet: This clone was released in 2000. The experimental designation for this variety was A8595-1. It has long tubers that are moderately russetted and is very similar in appearance to Russet Norkotah. It is the result of a cross between A77182-1 (Atlantic x Lemhi Russet) and Russet Norkotah. In 2001 it was included in trials at Rexburg and Shelley, (Table 1, 2). It outperformed Russet Burbank in nearly every yield and quality category. It produces very good fry color following cold storage. Gem Russet is a PVY carrier, similar to its male parent Russet Norkotah.

Ivory Crisp (NDO1496-1): This round, white chipping clone is an Oregon selection of a North Dakota seedling. It is the result of a cross between ND292-1 and A77268-1 (Lemhi Russet x Norchip). It was dropped from the Oregon program, but has since been picked up by the Idaho program due to its very good cold chipping characteristics and is scheduled for release in 2001 as Ivory Crisp. In 2001, it was grown in one trial at Aberdeen where it had lower yield than Chipeta (Table 7). Chip color was better than any of the standard varieties and was the best in the trial after long-term storage at 40°F. Ivory Crisp has shown the ability to chip acceptably from cold storage and to recondition well.

A84118-3 (Summit Russet): This long, russet clone is the result of a cross between A77236-6 and TND329-1Russ. It has excellent tuber type and appearance. In past years it has produced only moderate yields, but a high percentage of marketable tubers. In 2001, it was included in the Rexburg and Shelley trials (Tables 1, 2). In Shelley and Rexburg it out-yielded Russet Burbank and produced tubers with high specific gravity and good fry color. In past years this clone has shown moderate levels of resistance to foliar late blight, and high levels of resistance to tuber blight.

A8893-1: This is a medium to early maturing selection with oblong, russet tubers. It resulted from a cross of A7816-14 and NorKing Russet. It was selected at the Parma research station for its ability to produce good early yields and maintain adequate processing quality under stress conditions. In 2001, it was grown in trials at Shelley and Rexburg (Tables 1, 2). It out-performed the check varieties in nearly all yield and quality parameters. Its fry color was similar to that of the check varieties. In the baked potato evaluations it was

largely indistinguishable from Russet Burbank (Table 8).

A9014-2: This selection is medium maturing with heavy russet skin and oblong shape. It is the result of a cross between Gem Russet and A8341-5. It has shown the ability to produce tubers with excellent appearance. A9014-2 has high specific gravity and is one of the best selections to date for fry color from 40° F storage. In 2001, it was grown in trials at Rexburg and Shelley (Tables 1, 2). It performed very well at both locations compared to the standard varieties. In the baked sensory evaluations it was indistinguishable from Russet Burbank for flavor (Table 8) after storage.

A9045-7: This selection is medium maturing with long tuber type and light to medium russet skin. It resulted from a cross of Ranger Russet and Russet Legend. It was selected at Parma for early yield and good processing quality under stress conditions. In past years it has shown good resistance to sugar ends. In 2001, it was grown in trials at Rexburg, Shelley (Tables 1, 2). It was the highest yielding variety at Shelley and second highest at Rexburg. It also showed excellent resistance to all internal defects and was similar in blackspot bruise susceptibility to Russet Burbank. In the baked potato sensory evaluation it was rated lower than Russet Burbank (Table 8).

A90586-11: This clone came from the late blight resistance breeding program. It is a cross between the Polish seedling KSA195-90 (PG-429 x Duet) and Ranger Russet. It has long shape and white skin. In 2001 it was grown at Shelley and Rexburg, (Tables 1, 2). It has shown excellent yield potential and high specific gravity. Its fry colors were similar to those of Russet Burbank. It was similar to Ranger Russet in susceptibility to blackspot bruise. A90586-11 is resistant to metribuzin injury (Table 9). In the Corvallis late blight tests, it was the best clone for resistance to foliar late blight (Table 10).

A91790-13: A late maturing, medium to high yielding selection with round white tubers. It resulted from a cross of Chipeta and Ivory Crisp. A91790-13 has excellent chip color out of 40 or 50°F storage (Table 6, 7). A91790-13's strengths include high specific gravity, good chip color out of storage, and few internal problems. Weaknesses include adhering stolons and susceptibility to tuber late blight rot (Table 10).

Idaho Table 1. Performance of russet potato selections on the farm of Gary Summers at Rexburg, Idaho, in 2001.

Clone	Total Yield	U.S. No. 1's		Culls &		Avg Tuber Size	Specific Gravity	Hollow Heart/ ¹ Brown Center	Blackspot ² Bruise	Fry 40 ³ Color	Fry 45 ³ Color		
		Yield	%	> 12 oz.	6 to 12 oz.							< 4 oz.	U.S. No.2
-----cwt/acre----													
------%-----													
RUSSET BURBANK	197	126	64	9	36	21	15	5.4	1.082	0	3.4	3.0	1.6
BANNOCK RUSSET	304	283	93	37	43	5	1	7.8	1.084	10	2.8	2.4	1.8
GEM RUSSET	259	209	81	15	46	15	4	5.8	1.086	8	3.1	2.4	0.8
ALTURAS	433	345	80	14	45	13	8	6.1	1.089	4	2.9	2.0	0.7
A84118-3	304	253	83	8	46	15	2	5.5	1.086	6	2.1	2.7	1.2
A8893-1	318	269	85	16	45	11	4	6.2	1.085	0	3.0	2.7	1.0
A9014-2	194	152	78	12	40	19	3	5.3	1.084	2	2.7	1.5	0.8
A9045-7	381	340	89	38	39	5	6	8.5	1.089	4	3.5	2.9	2.3
A90586-11	282	208	74	21	36	11	15	6.6	1.094	3	3.7	2.8	1.9
A92030-5	233	206	88	33	42	7	4	7.5	1.085	0	3.2	2.8	1.8
A93157-LS	186	139	75	6	47	19	6	5.1	1.088	10	3.4	1.3	0.3
AO87277-6	331	295	89	42	38	6	5	8.6	1.086	3	3.2	2.8	1.1
Mean	285	236	82	21	42	12	6	6.5	1.086	4	3.1	2.4	1.3
LSD (.05)	91	80							0.003		0.3	0.5	0.5
LSD (.01)	121	106							0.005		0.4	0.6	0.7

¹ Hollow heart/brown center was measured by cutting tubers >12 oz.
² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.
³ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

Idaho Table 2. Performance of russet potato selections on the farm of DeVerele and Bart Wattenbarger at Shelley, Idaho, in 2001.

Clone	Total Yield	U.S. No. 1's				Culls &		Specific Gravity	Hollow Heart/ ¹		Blackspot ² Bruise	Shatter ³ Bruise	Fry 40 ⁴		Fry 45 ⁴	
		Yield		% > 12 oz. 6 to 12 oz. < 4 oz.		U.S. No.2			Brown Center	Bruise			Color	Color		
		Yield	%	%	%	U.S. No.2										
-----cwt/acre----- %-----																
RUSSET BURBANK BANNOCK RUSSET GEM RUSSET UMATILLA A84118-3 A8893-1 A9014-2 A9045-7 A90586-11 A92030-5 A93157-6LS AO87277-6	380	262	69	16	33	12	19	1.077	2	3.1	3.2	3.3	0.9			
	521	461	88	48	32	4	7	1.085	0	2.8	3.4	2.0	0.6			
	408	351	86	29	45	8	6	1.085	2	3.3	2.9	1.8	0.4			
	441	346	78	27	37	10	12	1.088	2	3.3	2.9	2.0	0.5			
	456	413	91	37	40	5	4	1.096	10	2.6	3.0	2.4	0.4			
	442	356	81	26	39	8	11	1.079	5	3.1	2.8	2.8	0.7			
	340	267	79	37	29	9	12	1.080	10	2.9	3.0	1.4	0.2			
	561	463	83	48	24	2	16	1.089	0	3.3	2.4	2.8	1.4			
	467	251	54	21	22	9	38	1.095	0	3.6	2.8	2.9	0.9			
	380	304	80	34	34	6	13	1.081	2	3.2	2.9	2.7	1.4			
Mean LSD (.05) LSD (.01)	556	445	80	48	23	5	15	1.092	7	3.9	2.6	1.1	0.3			
	479	368	77	27	37	6	17	1.085	0	3.2	3.3	2.6	0.9			
	453	357	79	33	33	7	14	1.086	3	3.2	2.9	2.3	0.7			
	63	70						0.004		0.2	0.2	0.4	0.4			
	84	93						0.005		0.3	0.3	0.6	0.5			

¹ Hollow heart/brown center was measured by cutting tubers > 12 oz.

² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.

³ Shatter bruise measured using a 1-5 scale where 1 = resistant, 5 = susceptible.

⁴ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

Idaho Table 3. Performance of russet potato selections in the Idaho location of the Tri-State (Idaho, Oregon, Washington) variety trial grown on the Aberdeen Experiment Station in 2001.

Clone	Total Yield	U.S. No. 1's				Culls &		Specific Gravity	Hollow Heart/ ¹		Blackspot ² Bruise	Shatter ³ Bruise	Fry 40 ⁴		Fry 45 ⁴	
		Yield	%	> 12 oz.	6 to 12 oz.	< 4 oz.	U.S. No.2		Brown Center	Bruise			Color	Color		
-----cwt/acre----- %----- %-----																
RUSSET BURBANK	380	169	44	12	25	9	47	8	1.075	3.1	3.0	3.5	1.4			
RANGER RUSSET	466	328	70	36	29	3	27	0	1.086	4.0	2.4	2.9	1.0			
A91186-2	400	328	82	32	41	6	12	0	1.083	3.8	2.4	1.8	0.4			
A91814-5	518	386	75	25	41	10	15	6	1.089	2.7	2.1	0.9	0.1			
A92030-4	352	225	64	35	22	6	30	0	1.085	3.6	2.5	2.4	1.2			
A92030-5	419	287	68	37	23	7	24	33	1.080	3.8	2.6	3.4	1.8			
A9304-3	454	359	79	56	17	7	15	8	1.083	3.4	2.6	3.3	1.0			
A9305-10	554	419	76	34	29	12	12	0	1.082	3.5	2.7	2.1	0.6			
A93116-3	394	271	69	24	37	6	25	0	1.074	2.0	2.7	3.1	1.2			
A93157-6LS	400	333	83	42	36	6	11	8	1.085	4.3	2.2	1.0	0.4			
PA95A11-14	285	178	62	3	32	35	3	3	1.076	2.9	2.7	3.3	1.8			
Mean	420	298	70	30	30	10	20	6	1.081	3.4	2.5	2.5	1.0			
LSD (.05)	88	80							0.004	0.4	0.3	0.7	0.6			
LSD (.01)	118	107							0.005	0.5	0.4	1.0	0.9			

¹ Hollow heart/brown center was measured by cutting tubers > 12 oz.

² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.

³ Shatter bruise measured using a 1-5 scale where 1 = resistant, 5 = susceptible.

⁴ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

Idaho Table 4. Performance of advanced yield selections grown at Aberdeen, Idaho, Experiment Station in 2001.

Clone	Total Yield	U.S. No. 1's				Culls &		Average Tuber Size	Specific Gravity	Hollow ¹ Heart	Blackspot ² Bruise	Fry 40 ³ Color	Fry 45 ³ Color						
		Yield	%	> 12 oz.	6 to 12 oz.	< 4 oz.	U.S. No.2												
														%					
														oz.					
----cwt/acre----																			
										</									

¹ Hollow heart was measured by cutting tubers > 12 oz.

² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.

³ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

Idaho Table 5. Performance of advanced yield selections grown at Kimberly, Idaho, Experiment Station in 2001.

Clone	Total Yield ---cwt/acre---	U.S. No. 1's			Culls &		Average Tuber Size oz.	Specific Gravity	Hollow ¹ Heart ---%---	Blackspot ² Bruise	Fry 40 ³ Color	Fry 45 ³ Color
		Yield	%	> 12 oz.	< 4 oz.	U.S. No.2						
				-----%-----								
Russet Burbank	516	360	70	31	30	5	25	9.4	1.078	0	2.3	0.8
Ranger Russet	558	394	71	31	32	3	27	10.9	1.089	0	2.0	0.8
Shepody	549	217	40	21	15	1	59	12.7	1.077	0	3.0	1.8
Alturas	617	481	78	17	45	6	16	7.4	1.085	3	1.8	0.4
A94020-3	481	417	87	45	35	3	11	10.2	1.081	0	2.5	1.6
A94053-5	347	263	76	13	43	16	8	6.2	1.087	0	1.9	0.4
A94138-3	502	340	68	35	25	3	29	9.9	1.079	3	2.2	0.6
A92303-7	338	242	72	22	32	10	18	7.1	1.078	0	2.1	0.9
A93307-4	534	406	76	41	29	4	20	10.4	1.088	0	2.7	1.5
AOA95154-1	517	430	83	25	43	7	10	7.5	1.087	0	1.2	0.4
AOA95155-7	463	358	77	40	27	4	19	9.8	1.077	3	1.9	0.6
A93187-3	523	390	75	46	24	3	22	11.4	1.084	3	2.7	2.5
A9391-7	567	418	74	41	28	3	23	10.8	1.090	3	2.3	1.0
A9305-5	537	447	83	66	15	1	16	14.8	1.080	8	2.3	0.8
A9324-4	466	292	63	39	20	2	35	12.2	1.081	0	2.2	1.0
A9538-14LB	577	454	79	56	19	1	20	12.3	1.078	0	2.0	0.5
A93445-5	563	450	80	46	27	3	17	10.7	1.100	3	2.0	0.8
A92294-6	701	499	71	23	42	3	26	9.0	1.094	0	1.8	0.2
Mean	520	381	73	35	29	4	22	10.2	1.084	1	2.2	0.9
LSD (.05)	79	81							0.004		0.5	0.5
LSD (.01)	105	108							0.006		0.6	0.7

¹ Hollow heart was measured by cutting tubers > 12 oz.² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.³ USDA fry grade score with lower score indicating lighter color; potatoes stored at 40° or 45°F.

Idaho Table 6. Performance of chipping selections in the Idaho location of the Western Regional Chipping Trial grown on the Aberdeen, Idaho, Experiment Station in 2001.

Clone	Total Yield	U.S. No. 1's		Culls &		Specific Gravity	Hollow Heart/ ¹		Blackspot ²		Shatter ³		Chip 40 ⁴		Chip 50 ⁴		Recon ⁵ Color
		Yield	%	> 12 oz.	6 to 12 oz.	< 4 oz.	U.S. No.2	Brown Center	Bruise	Bruise	Bruise	Bruise	Color	Color	Color	Color	
	----cwt/acre----				-----%			-----%									
ATLANTIC	443	401	91	24	51	5	4	63	2.5	2.2	2.2	3.1	1.3	2.6			
CHIPETA	532	408	77	37	24	5	18	30	3.0	2.9	2.9	3.9	1.6	3.4			
A90490-1	535	417	78	30	35	7	15	26	2.2	3.6	3.6	4.0	1.7	3.9			
A91790-13	533	456	86	19	46	11	4	3	2.6	2.1	2.1	1.0	1.0	1.3			
NDTX4930-5W	429	351	82	47	28	5	14	28	3.2	3.1	3.1	2.3	1.1	1.8			
B0766-3	316	287	91	22	55	8	1	23	3.4	3.0	3.0	2.4	1.0	2.5			
NY112	544	486	89	22	52	6	4	33	2.9	2.0	2.0	2.5	1.1	1.7			
AKM94026-7	388	327	84	13	55	7	9	38	2.7	2.4	2.4	2.2	1.0	1.1			
Mean	465	392	85	27	43	7	9	30	2.8	2.6	2.6	2.7	1.2	2.3			
LSD (.05)	97	94							0.4	0.4	0.4	0.7	0.3	0.7			
LSD (.01)	131	127							0.5	0.6	0.6	0.9	0.5	0.9			

¹ Hollow heart/brown center was measured by cutting tubers >12 oz.

² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.

³ Shatter bruise measured using a 1-5 scale where 1 = resistant, 5 = susceptible.

⁴ Chip color rated using SFA color chart, 0-5 scale with lower score indicating lighter color; potatoes stored at 40° or 50°F.

⁵ Tubers stored at 40°F for 7 weeks then reconditioned to 65°F for 3 weeks.

Idaho Table 7. Performance of advanced chipping potato selections grown on the Aberdeen, Idaho, Experiment Station in 2001.

Clone	Total Yield	U.S. No. 1's			Culls & U.S. No.2	Specific Gravity	Hollow Heart/ ¹ Brown Center	Blackspot ² Bruise	Merit ³ Score	Dec 45 ⁴ Color	Feb 45 ⁴ Color	Feb 40 ⁴ Color	
		Yield		%									
		-----cwt/acre----	------%-----										
A90490-1	448	396	88	44	9	2	1.077	23	3.8	3.1	2.4	2.5	4.1
A91790-13	568	496	87	28	11	2	1.091	3	4.2	3.5	1.1	2.3	2.4
A94322-8	504	449	89	12	77	1	1.092	10	4.1	3.6	1.4	2.3	3.2
A96727-7	410	372	91	25	66	1	1.085	63	3.3	3.1	1.4	2.4	3.4
A96725-2	461	364	79	30	48	10	1.084	20	2.5	2.3	1.1	2.1	3.6
A96734-4	604	505	84	34	49	6	1.098	23	3.9	2.4	1.3	2.1	3.1
AO97042-19	565	507	90	25	65	1	1.094	3	3.7	3.4	1.5	2.4	4.1
COA96141-2	495	450	91	20	71	0	1.079	6	4.7	4.1	1.2	2.1	2.7
COA96141-4	387	340	88	10	78	0	1.078	5	4.5	2.9	1.1	2.2	3.0
COA96142-2	452	360	80	15	64	1	1.091	0	3.7	3.2	1.4	2.2	3.3
COA96142-3	499	439	88	25	63	3	1.083	23	4.1	3.1	1.3	2.2	3.5
COA96142-5	567	481	85	34	50	2	1.087	3	3.9	2.6	1.4	2.1	3.0
COA96142-7	410	331	81	21	60	11	1.089	18	3.5	2.2	1.5	2.4	3.1
COA96231-2	412	359	87	28	59	0	1.086	0	3.1	2.3	1.6	2.2	3.5
NDA5521-3	439	390	89	18	71	1	1.084	0	4.0	3.0	1.5	2.6	3.2
Ivory Crisp	437	358	82	11	71	1	1.095	0	3.9	3.1	1.0	2.0	2.9
Chipeta	624	578	93	62	30	5	1.082	13	4.0	2.7	2.1	2.6	3.8
Mean	487	422	86	26	60	3	1.087	12	3.8	3.0	1.4	2.3	3.3
LSD (.05)	80						0.005			0.5	0.5	0.5	0.4
LSD (.01)	107						0.006			0.7	0.6	0.7	0.5

¹ Hollow heart/brown center was measured by cutting tubers > 12 oz.² Blackspot bruise measured using the abrasive peel method, 1-5 scale where 1 = resistant, 5 = susceptible.³ Merit Score is similar to a breeder's preference rating and based on overall appearance and size of field run potatoes, 1-5 scale with 5 = best.⁴ Chip color rated using SFA color chart, 0-5 scale with lower score indicating lighter color; potatoes stored at 40° or 45°F.

Idaho Table 8. Sensory evaluations of baked potatoes from breeding selections grown at Aberdeen, Idaho, in 2001.¹

Clone	At Harvest			Overall	After 5 Months of Storage (40° F)			
	Color	Texture	Flavor		Color	Texture	Flavor	Overall
Russet Burbank	6.5 ab	6 a	6.0 ab	6.0 ab	6.5 a	5.9 a	5.7 ab	5.9 ab
A8893-1	6.4 bc	5.6 bc	6.0 c	5.6 c	6.5 a	5.7 bc	5.6 bc	5.6 bc
A9014-2	6.2 c	5.5 c	5.6 c	5.6 c	6.6 a	5.8 ab	5.8 ab	5.9 ab
A0945-7	6.5 ab	5.9 a	5.8 bc	5.8 bc	6.2 b	5.6 bc	5.6 bc	5.5 c
A90586-11	6.5 ab	5.9 ab	5.8 bc	5.9 bc	6.3 ab	5.5 c	5.4 c	5.5 c
AO87277-6	6.7 a	6.1 a	6.2 a	6.2 a	6.5 a	5.9 a	5.9 a	6.0 a

¹ Evaluations were made by trained panelists using double blind procedures. Approximately 100 tests were done on each clone. Each baked potato was rated for color, texture, flavor, and overall appeal. Ratings were made using a 1-9 scale with 9 = best. Means were separated using Duncan's Multiple Range Test, and means followed by the same letter are not significantly different.

Idaho Table 9. Reaction of potato clones to the herbicide metribuzin (Sencor/Lexone) in 2001.¹

Clone	Plant Injury ² 21 Days Following Application	Predicted ³ Yield Reduction Due to Injury ²	Relative ⁴ Susceptibility to Injury
----- % -----			
<u>Russet and Long Whites</u>			
Russet Burbank	3	0	R
Ranger Russet	3	0	R
Russet Norkotah	13	0	R
Shepody	42	24	S
A8893-1	0	0	R
A9014-2	5	0	R
A9045-7	3	0	R
A90586-11	10	0	R
AC87079-3	0	0	R
AC87138-4	3	0	R
AC89536-5	0	0	R
AC91014-2	0	0	R
AO92017-6	3	0	R
ATX9202-3RU	5	0	R
Stampede Russet	0	0	R
A91186-2	10	0	R
A91814-5	18	2	MS
A92030-4	13	0	R
A92030-5	0	0	R
A9304-3	8	0	R
A9305-10	10	0	R
A93116-3	5	0	R
A93157-6LS	8	0	R
PA95A11-14	20	3	MS
<u>Chippers and Round Whites</u>			
Atlantic	20	4	MS
A90490-1	0	0	R
A91790-13	0	0	R
A92584-3BB	13	0	R
AKM94026-7	5	0	R
NDTX4930-5W	0	0	R
TX1523-1RU/Y	3	0	R
TX1674-1W/Y	5	0	R
Yukon Gold	0	0	R
<u>Reds</u>			
Dark Red Norland	3	0	R
Red LaSoda	0	0	R
A92653-6R	10	0	R
A92657-1R	13	0	R
NDC5281-2	55	32	S
NDO4323-2R	13	0	R
NDTX4271-5R	13	0	R

¹ Metribuzin applied postemergence (8-12 inch plants) at a rate of 1.0 lb a.i./A (17.5gpa, 30 psi).

² Plant injury was recorded as the percentage of foliage from average plant in each plot that showed typical metribuzin symptoms (chlorosis, necrosis, vein clearing, etc.)

³ Predicted yield reduction is expressed as percent loss compared to untreated plots and was calculated using the following equation: Yield reduction = [1-(1.142 + 0.176 (Log (plant height treated/plant height untreated))- 0.00796 (plant injury))] x 100.

⁴ VR=very resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible, VS=very susceptible.

Idaho Table 10. Response to late blight pressure at Corvallis, Oregon, 2001.

Entry	Foliar Rating ¹		% Tuber Infection ²	Entry	Foliar Rating ¹		% Tuber Infection ²
	9/21/01	9/28/01			9/21/01	9/28/01	
R. Burbank	5.8	8.0	10	Atlantic	7.3	8.5	18
Ranger R.	6.3	8.0	80	Chipeta	5.8	6.8	58
R. Norkotah	8.0	8.8	50	A90490-1	6.0	7.5	28
A91814-5	6.8	8.3	93	TX1674-1W/Y	7.8	9.0	15
A8893-1	7.8	9.0	23	NDTX4271-5R	7.5	9.0	45
A9014-2	7.0	8.5	23	NDO7119-1	8.0	9.0	38
A9045-7	5.8	7.3	8	A92584-3BB	7.5	9.0	78
A90586-11	3.5	4.5	13	A91790-13	6.3	8.5	95
AC87079-3	5.8	7.3	0	NDTX4930-5W	7.3	8.8	60
A92030-4	5.5	8.3	40	A9230-5	7.5	9.0	25
ATX9202-3RU	6.8	8.8	40	A9304-3	7.0	8.5	38
AC87138-4	6.8	8.3	23	A93157-6LS	7.3	8.8	40
AC91014-2	7.8	9.0	18	A91186-2	7.8	9.0	20
AO92017-6	5.5	7.5	53	A93116-2	6.8	7.8	10
TXNS102	7.0	8.8	60	A9305-10	6.8	8.0	38
TXNS296	7.3	8.8	38	BTX1544-2W/Y	7.8	9.0	18
PA95A11-14	8.3	9.0	28	CO92077-2RU	7.5	8.5	18
NDC5281-2	8.3	9.0	30	AC92009-4RU	7.0	8.0	0
AO87277-6	5.5	8.0	20	TC1675-1RU	7.3	8.8	53
Dk. R. Norland	8.0	9.0	60	CO93037-6R	6.8	8.8	30
Red LaSoda	8.0	9.0	50	CO92027-2R	8.0	9.0	40
Yukon Gold	8.0	9.0	50	ATX9202	7.3	8.5	35
A92657-1R	8.0	9.0	28	NDC5372-1R	7.3	8.8	30
A92657-6R	7.3	9.0	20	NDTX4304-1R	7.8	9.0	33
NDO4300-1R	8.0	9.0	43	AC89536-5	6.8	8.3	18
NDO4323-2R	7.3	9.0	20	Umatilla R.	5.8	7.8	3
TX1523-1RU/Y	7.3	8.8	40				
Mean	7.0	8.4	33.7				

¹ Ratings are percent leaf surface infected with late blight average of 4 reps: (1 = no foliar injury; 2 = 1-5%; 3 = 5-10%; 4 = 10-20%; 5 = 20-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury).

² Percent of late blight infected tubers based on 10 randomly selected tubers.

Idaho Table 11. Evaluation of potato cultivars and breeding selections for resistance to field diseases, at Aberdeen, Idaho, 2001.

Cultivar or Selection		Verticillium Wilt ¹	Early Blight ²	Common Scab ³
WESTERN REGIONAL TRIAL	A8792-1	2.7	4.8	0
	A8893-1	7.8	6.0	0
	A9014-2	4.7	6.3	2
	A9045-7	3.0	4.0	19
	A90586-11	1.3	3.5	50
	AC87079-3	1.2	2.3	48
	AC87138-4	2.9	3.9	13
	AC89536-5	5.3	5.5	0
	ATX9202-3RU	4.7	5.7	0
	TXNS102	8.2	8.0	2
	TXNS296	8.3	7.3	3
TRI STATE TRIAL	A98348-10	3.3	4.7	0
	A92303-7	4.5	5.2	77
	AO89128-4.1	7.7	6.8	0
	AO89128-4.2	1.5	4.2	7
	AO92007-2	5.8	6.0	0
	AO92017-6	4.8	4.7	0
	COO93031-3	6.3	5.8	0
REGIONAL CHIP TRIAL	A90467-14	1.0	2.8	6
	A90490-1	0.5	2.5	4
	A91790-13	0.8	3.3	40
	AC87340-2	2.7	5.7	40
	AC89653-3	5.0	5.8	17
	AO91812-1	0.3	2.0	34
	NDTX4930-5W	6.0	5.5	70
MISCELLANEOUS ADVANCED SELECTIONS	A82360-7	0.7	2.8	1
	A7961-1	5.2	4.7	0
	AO87277-6	6.7	5.0	48
NAMED VARIETIES	Atlantic	6.7	6.2	9
	Bannock Russet	0.3	2.5	0
	Ranger Russet	3.0	4.7	57
	Russet Burbank	7.7	5.7	0
	Russet Norkotah	8.7	7.5	8
	Shepody	5.7	5.8	19
LSD (p=0.05)		1.5	1.7	16

¹ Verticillium wilt 0 to 9 scale: 0 = none; 9 = 90% stems dead or dying with typical Verticillium wilt symptoms.

² Early blight 0 to 9 scale: 0 = none; 9 = >90% leaflets with severe blight lesions or necrosis due to early blight.

³ Common scab: % tubers with greater than 10% of the surface area covered with common scab.

Maine

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Introduction: Potato variety trials were conducted at three locations in Maine as part of the NE-184 Regional Project (Development of New Potato Clones for Environmental and Economic Sustainability in the Northeast). Forty-one potato varieties and clones were tested at Aroostook Research Farm, Presque Isle, Maine. Twenty-five NE-184 varieties and lines were tested on a commercial farm in Exeter (central Maine), while thirty-four varieties and lines were tested on a commercial farm in St. Agatha (northern Maine). Additional trials of advanced selections (pre-regional trial entries) from the USDA-ARS program in Beltsville and the Maine Potato Breeding Program were conducted at the two commercial locations. The primary objective of all of the Maine trials is to determine performance, quality, and storage characteristics of promising potato clones and new varieties in Maine.

Methods: Single-row plots, 25 feet long, were utilized for the NE-184 trials. The plot length for the advanced selection trials was 20 feet. All trials were hand planted using randomized complete block designs and four replications. The seedpiece spacing used for each line is listed in subsequent tables. Details of important management practices are presented in Maine Table 1. At the Presque Isle site the varieties were grouped so that separate tests could be vine-killed and harvested based on maturity classification. Remaining cultural practices were similar to those used on commercial farms in the area. Specific gravity was determined at harvest using the weight-in-air/weight-in-water method. Hollow heart ratings indicate the number of hollow tubers observed per 40 large tubers examined. Unless noted otherwise chip color evaluations were conducted during December following storage at 50°F. Chips were fried at 350°F for three minutes and evaluated using an Agtron M35, calibrated with the black "0" disk = 0 and the white "90" disk = 90. Chips were crushed and reported values are means from four replicates per variety. Each sample was read three times with thorough mixing between readings.

Skinning and shatter bruise were measured soon after harvest. Approximately 10 lbs of tubers that exceeded 1 7/8" diameter were tumbled in a drum with three stones for 1 minute at 15 rpm. Each tuber was then rated for percentage of the tuber surface affected by skinning or shatter bruise. The tubers were then placed in 45°F storage and rated for internal damage during the storage season. An additional abrasive peel test was conducted on separate samples to determine biochemical aspects of blackspot bruise susceptibility (see Pavsek et al, APJ 62:511-517). Ten tubers per plot were warmed for 24 hours and then abrasively peeled for 30 seconds. Color was allowed to develop for 24 h and then individual tubers were rated for discoloration where 0=no discoloration and 5=severe discoloration.

Results:

Rainfall, General Growth, and Plant Stands. Rainfall by month and location is listed in Maine Table 2. Only the irrigated crop in central Maine received adequate water during 2001. The Presque Isle site had the lowest rainfall during June through August. September rainfall at the Presque Isle and St. Agatha sites came too late for early- and mid-season varieties and caused some tuber defects and low specific gravity in the later varieties. Plant growth was generally quite good at the central Maine site, but early senescence was prevalent at the other two sites due to drought stress in August. Pest control practices were very effective at all sites. Gem Russet exhibited extremely slow emergence and early vigor. Plant stand equaled or exceeded 85% of targets for most NE-184 lines.

NE-184 Regional Potato Variety Trials at Presque Isle, Exeter, and St. Agatha. Yield and quality results from these trials are summarized in the Eastern Region Report and are presented earlier in this publication. Detailed results can be obtained from the authors.

French Fry Processing from the 2000 Aroostook Research Farm Test. French fry color and texture of 11 NE-184 lines were evaluated under simulated processing conditions (Maine Table 3). Gem Russet and W1348Rus produced french fries that were equal to Russet Burbank in quality. Texture scores for Gem Russet, Shepody, Umatilla Russet, A84118-3, AO87277-6, and W1348Rus were statistically equal to those of Russet Burbank.

Aroostook Research Farm Small-scale Storage

Evaluations. Limited data on storage and processing characteristics were collected from 37 NE-184 varieties and clones during the 2000-2001 storage season (Maine Tables 4 and 5). Chip colors from 50°F storage in February were acceptable for many lines with anticipated chipping potential. Lines with outstanding chip color from 50°F February storage were: Eva, B0766-3, NY102, NY115, and W1242. In the Presque Isle test, NY102, NY115, and W1242 produced good chip colors directly from 45°F storage. In the Central Maine test, B0766-3, FL1833, NY102, NY112, NY115, and W1242 produced good chip colors directly from 45°F storage. None of the lines produced good chips directly out of 38°F storage; however, W1242 did the best directly from 38°F. In the Presque Isle test, B0766-3, NY102, NY115, and W1242 reconditioned well from 38°F storage. In the Central Maine test, Eva, B0766-3, FL1533, FL1833, NY102, NY112, NY115, and W1242 reconditioned well from 45°F storage. Eva, B0766-3, NY102, and NY115 provided good chip colors through late April evaluations.

Skinning and bruise test scores for the 2000 field season are presented in Maine Table 4. Internal bruising problems were detected in Russet Legend and W1313. Russet Legend, Shepody, Yukon Gold, A84118-3, AF1455-20, AF1615-1, AF1758-7 had particularly good blackspot bruise potential scores. Snowden, NY102, W1386Rus, W1874-1R had particularly poor blackspot bruise potential scores.

Chieftain, Eva, Gem Russet, A84118-3, A84180-8, AF1437-1, and W1874-1R required at least 200 days to reach the one-half-inch sprout stage. Katahdin, Shepody, Snowden, AF1615-1, AF1758-7, AO87277-6, and W1386Rus reached the one-half-inch sprout stage in 150 days or less. Selections with very low weight loss (<3.0%) from 38°F storage were: Yukon Gold, AF1615-1, Russet Burbank, and Shepody. Selections with very low weight loss (6% or less) from 50°F storage were: Eva, Gem Russet, Russet Burbank, Russet Norkotah #3, Russet Norkotah #8, Shepody, Yukon Gold, A84118-3, and A84180-8. Selections with high weight loss (12% or more) from 50°F storage were: Dark Red Norland, Snowden, AF1455-20, AF1758-7, W1348Rus, and W1874-1R.

Central Maine Advanced Breeding Lines. AF1856-1, AF2082-12, AF2115-1, B1829-5, and FL1625 had significantly lower U.S.#1 yields than the Atlantic standard (Maine Table 6). B1591-1, B1884-9, and

VW9503-4 produced the highest U.S.#1 yields of the test lines. Specific gravities of AF1856-1, AF2082-12, B1598-4, and VW9503-4 were less than 1.080. B1829-5 had very small tuber size. Sunburn was the major tuber defect in the trial (Maine Table 7). Atlantic and AF2115-1 had >15% sunburn. There was very little hollow heart in this trial; however, Atlantic (7.5%), AF1856-1 (5%), and B1598-4 (2.5%) had some hollow heart present in the larger tubers. All lines with the exception of AF2115-1 had very good chip color in this test. Considering all attributes, the most promising numbered chipping lines in this test were B1591-1, B1709-6, B1826-1, and B1884-9.

Northern Aroostook County Advanced Breeding

Lines. None of the lines produced significantly higher U.S.#1 yields than Atlantic in the advanced round-white variety test; however, total yields of VW9309-9 were significantly higher (Maine Table 8). ARS-W95-6498-5, ARS-W95-6553-1, ARS-W96-4662-2, ARS-W96-40006-1, ARS-W96-40022-5, B1752-5, and B1801-6 produced significantly lower U.S.#1 yields. AF1470-6, AF1764-3, and VW9501-5 had a specific gravity less than 1.070. ARS-W95-6498-5, ARS-W95-6553-1, ARS-W96-4654-1, ARS-W96-4662-2, ARS-W96-40006-1, ARS-W96-40022-5, B1752-5, B1870-17, and B1880-6 had very small tuber size. AF1764-3 were very late maturing (Maine Table 9). External tuber defects were common in this study. Only Katahdin, AF1921-4, ARS-W96-4654-1, B1880-6, and SC8801-2 combined good appearance for fresh market with relative freedom from external tuber defects. Atlantic and ARS-W96-4662-2 had \geq 5% hollow heart out of 40 large tubers examined. Considering all attributes, the numbered lines in this test that had the most promise for fresh market use were: AF1921-4 and SC8801-2.

In the advanced russet or long-type variety test, none of the test lines produced significantly higher total yields than Russet Burbank (Maine Table 10). AF2133-17 were significantly lower yielding than Russet Burbank. AF1808-18 had significantly higher specific gravity than Russet Burbank. AF1808-18 and AF1866-8 had good tuber size for french fry processing. Only B1649-8 combined good tuber appearance for fresh market with relative freedom from external tuber defects (Maine Table 11). No hollow heart was detected in this study. Shepody, AF1808-18, AF1866-8, and AF2133-17 had significantly better chip color than Russet Burbank. Considering all attributes, the numbered lines in this

test that showed promise for french fry processing were AF1808-18, AF1866-8, AF2061-2. B1649-8 shows promise as a fresh market russet.

Presque Isle Advanced Red- and Purple-skinned Breeding Lines. AF2151-1, B0984-1, B1523-4, B1529-1, B1758-3, B1758-4, and B1816-5 had U.S.#1 yields that were equal to or higher than Dark Red Norland (Maine Table 12). Skin netting and/or non-uniform color detracted from the appearance of several lines. As a result, only B0811-4, B1145-2, B1491-5, B1758-3, B1758-4, and B1763-4 received good tuber appearance ratings (Maine Table 13). Of these lines, B1758-3 and B1758-4 were quite susceptible to skinning. Considering all attributes, the numbered lines in this test that were considered most promising were: B1523-4, B1758-3, B1758-4, and B1763-4; however, several of the other, lower-yielding lines (e.g. B0811-4, B1145-2, B1491-5) offer sufficiently attractive skin color and tuber appearance for potential specialty-market use.

Of the 2000 growing season lines tested, Dark Red Norland, B0811-4, and B1145-2 had the best skin color ratings from storage (Maine Table 14).

Miscellaneous Bruise Test Results from the 2000 Growing Season. Bruise test and blackspot bruise potential results from the 2000 Central Maine and St. Agatha experiments are presented in Maine Tables 15 and 16.

Sensory Quality Evaluation of Advanced Breeding Lines from the 2000 Growing Season Trials. Baked and boiled sensory evaluation results from the 2000 growing season are presented in Maine Table 17. In the baked quality test, Eva, Gem Russet, AF1615-1, NY102, and NY112 were judged to be equal to their respective standard varieties. AF1753-16 was judged to be better than Russet Burbank. AF1437-1 was judged poorer than Superior. In the boiled quality test, Eva and NY102 were equal to or better than standards in sloughing, while the following lines were rated poorer than their standards: Gem Russet, AF1437-1, AF1615-1, AF1753-16, and NY112. Eva, AF1437-1, AF1615-1, AF1753-16, NY102, and NY112 were rated equal to or better than standards in color, while Gem Russet was rated poorer than the standard.

Promising Selections in the 2001 NE-184 Regional Variety Trials and Advanced Selection Trials.

Selections that performed particularly well in the 2001 regional trials by category were: Eva, Keuka

Gold, AF1615-1, AF1758-7 (mid- to late-maturing, fresh market); B0766-3, NY102, NY115, W1201 (mid-season chipstock lines); B1240-1 and NY112 (late-maturing chipstock lines); B1409-2 (fresh market russet); A90586-11 (late-season, late blight resistant, processing); AF1753-16 (french fry processing only).

Selections that performed particularly well in the 2001 advanced selection trials by category were: AF1921-4 and SC8801-2 (fresh market, whites); B1591-1, B1709-6, B1826-1, and B1884-9 (chipping); AF1808-18, AF1866-8, AF2061-2 (french fry processing); B1649-8 (fresh market russet); B1523-4, B1758-3, B1758-4 (specialty reds); and B1763-4 (specialty purple)

Maine Table 1. Trials sites and management practices for the 2001 potato variety trials.

Site information and/or Mgt. Practices	Aroostook Research Farm	Central Maine	Northern Aroostook County
Location:	Presque Isle	Exeter	St. Agatha
Grower Cooperator:	n/a	Crane Farms	LaBrie Farms
Soil Test Results:			
pH	5.2	5.4	5.8
P (lbs/A)	17.2 MH	20.6 H	18.4 H
K "	180 (3.2%, ML)	413 (7.6%, VH)	265 (5.2%, H)
Mg "	133 (7.2%, M)	128 (7.6%, M)	274 (17.0%, H)
Ca "	985 (32.5%, ML)	1201 (42.4%, M)	1776 (67.4%, H)
CEC meq/100g	7.5	6.8	6.5
OM %	3.6	2.6	4.6
Previous Crop:	timothy/clover	corn	oats/ryegrass
Fall Tillage:	moldboard plow	chisel plow	moldboard plow
Spring Tillage:	disk & harrow	chisel plow + conditioner	soil-finisher, 1X
Planting Date:	May 21	May 16	May 23
At-planting Insecticide:	imidacloprid 0.81 pt/A	imidacloprid 1.0 pt/A	imidacloprid 0.75 pt/A
At-plant Fertilization:	140-140-140	180-150-150	156-195-195
Other Fertilization:	none	150 lbs/A K2O topdressed	
Herbicide Program:	0.375 metrib., PE plus 0.0234 rimsulfuron, PE and 0.3 sethoxy, POST	0.875 linuron, PE	0.25 metrib., GCK plus 0.0156 rimsulfuron, GCK
Irrigation:	No	Yes (3.5 inches)	No
Vine Desiccation: (initial applic.)	Aug. 24 (E/ME) Sept. 6 (meds., reds) Sept. 18 (lates + russets)	Sept. 5	Sept. 17
Harvest:	Sept. 13 (E/ME) Sept. 20 (meds.) Oct. 4 (lates + russets)	Sept. 19	Oct. 3

Maine Table 2. 2001 Rainfall Summary.

Month	<u>Rainfall by Location and Month (inches)</u>		
	Presque		St.
	Isle	Exeter ¹	Agatha
May	1.97	n/a	1.04
June	2.28	4.60	3.37
July	3.26	4.40	3.54
August	1.80	0.00 (3.50)	1.84
Sept.	4.50	n/a	3.85
Total	13.81	n/a	13.64
Total (June 1 to August 31)	7.34	9.0 (12.50)	8.75

¹The Exeter site received approximately 3.5 inches of supplemental irrigation water during 2001. The numbers in parentheses indicate combined rainfall and supplemental irrigation.

Maine Table 3. French fry color and texture of selected potato clones and varieties under simulated processing conditions¹. All varieties were grown at Presque Isle, Maine, during 2000.

Variety	Color Grade ²		Grayness ³ Index	Mealiness ⁴ Index	Comments ⁵	Overall Rating ⁶
	Rating	Index %Dark				
Russet Burbank (std)	000-0	1.74	0.0	3.6	Ir	
Gem Russet	000	1.00	0.0	3.4	U	+
Russet Norkotah	00-1	2.52	0.0	3.8	Ir	-
Russet Norkotah #3	00-0	2.35	0.0	3.7	Ir, Be	-
Russet Norkotah #8	00-0	1.93	0.0	3.6	Ir	-
Shepody	00-0	2.36	0.0	4.0	Ir, Be	-
Umatilla Russet	00-0	1.78	0.0	3.9	U	o
A84118-3	000-00	1.47	0.0	3.9	Ir	o
A84180-8	000-0	1.66	0.0	3.4	Ir	-
AO87277-6	000-2	1.91	2.5	3.8	Ir	-
W1348Rus	000-00	1.25	0.0	4.0	U	+
Waller Duncan	LSD (k=100)	0.96		ns		

¹Two center raw tuber slices were cut from each of ten tubers. The slices were rinsed in cool water, blanched for 8 minutes at 170°F, par-fried at 375°F for 80 seconds, and quick frozen at -30°C in plastic bags. Four such replications were processed during December 2000 and held at -15°F until evaluation. Prior to evaluation, samples were finish-fried at 375°F for 1-3/4 minutes on March 2, 2001, blotted dry with a paper towel, and cooled for 6 minutes. Processing was done at the Department of Food Science and Human Nutrition, University of Maine, Orono, ME (We appreciate the help of Dr. Al Bushway and his staff). All tuber samples were stored at 50°F, 85% R.H. from harvest until processing. Percent dark = the percentage of fries that were rated in the 2 category or darker after processing (out of 80 slices representing 40 tubers).

²Color Grades are from USDA color standards chart #64-1, third edition. Lower indices indicate lighter color.

³Grayness indices represent weighted means derived from the following evaluation scale: 4 = no graying; 3 = slight graying; 2 = moderate graying; 1 = intense graying.

⁴Mealiness indices represent weighted means using the following scale: 6=very dry and mealy; 5 = dry, mealy; 4 = mod. mealy, sl. moist; 3 = sl. mealy, mod. moist; 2 = soggy, not mealy; 1 = very soggy, not mealy.

⁵Comments: U = uniform fried color; Ir = french fries were irregular in color; dark blotches detracted from appearance of product; Be = Dark blotches on ends of many fries; Bc = Dark blotches in centers of many fries; Bl = general blotchy appearance of fries; Sh = Short fries from small and/or round tubers.

⁶Overall rating: quality rated better (+), not different (o), or poorer (-) than Russet Burbank.

Maine Table 4. Chip color from 38°F, 45°F, and 50°F storage, reconditioning potential, bruise test scores, days to sprout formation, and storage weight losses at 38°F and 50°F for 37 potato varieties grown at Presque Isle, Maine, during 2000 and stored during the 2000-2001 storage season.

Variety	Chip Color		from Storage Recond. ²	Bruise Test Scores ³		Blackspot Bruise Potential ⁴	Days to Indic. Storage Wt.			
	50°F ¹	45°F ¹		Skin- ning	Shatter Inter- nal		Sprout Length ⁵	Loss % ⁶		
							PIP	½"	38°F	50°F
<u>Early/Med. Early Trial:</u>										
Superior (std)	--	--	--	1.06	1.40	1.31	154	175	4.1	6.8
Atlantic	--	--	--	1.61	1.28	1.41	154	182	4.5	9.6
Chieftain	--	--	--	3.13	1.30	1.25	161	203	4.1	8.1
Norland, Dk. Red	--	--	--	2.25	1.40	1.33	126	154	4.5	21.7s
AF1437-1	--	--	--	2.13	2.17	1.61	182	224	4.0	5.1
AF1763-2	--	--	--	1.07	1.17	1.21	140	161	4.7	9.3
CO86218-2	--	--	--	5.77	1.00	1.21	154	196	5.2	8.0
W1874-1R	--	--	--	4.50	1.41	1.47	154	203	5.0	15.3s
Waller Duncan LSD		6								
<u>Medium Chipping Trial:</u>										
Atlantic (std)	57	41	64	1.19	1.64	1.42	136	178	5.5	11.8
Eva (NY103)	59	44	63	1.93	2.31	1.27	185	212	4.8	4.9
Kennebec	50	34	55	3.41	1.64	1.28	157	178	5.7	7.7
Snowden	63	53	63	1.00	1.45	1.20	115	150	4.9	13.0
B0766-3	63	48	68	1.23	3.58	1.38	136	185	4.2	10.5
NY102	64	56	66	1.10	1.24	1.34	157	198	5.1	6.1
NY112	61	46	64	1.00	1.00	1.27	143	192	5.9	11.4
NY115	65	53	65	1.07	1.08	1.09	143	178	5.0	10.3
W1242	66	60	68	1.30	2.31	1.28	136	178	4.6	6.4
W1313	55	49	64	1.21	2.75	2.04	136	178	7.1	8.8
W1431	60	46	64	2.71	1.31	1.24	164	192	6.5	7.7
W1443	58	40	62	1.00	1.25	1.23	143	178	6.4	11.9
Waller Duncan LSD	3	4	4							
		</								

Maine Table 4. Continued.

Variety	Chip Color from Storage		Bruise Test Scores ³			Days to Indic. Storage Wt.	
	50°F ¹	45°F ¹ 38°F ¹	Recond. ²	Skin- ning	Shatter Inter- nal	Blackspot Bruise Potential ⁴	Sprout Length ⁵ PIP ½" 38°F 50°F
<u>Late Trial:</u>							
Katahdin	58	--	--	2.90	1.77	1.10	107 149 3.0 8.8
Yukon Gold	52	--	--	2.11	2.34	1.41	149 184 1.8 3.1
AF1455-20	59	--	--	1.48	1.77	1.87	128 156 3.6 12.3
AF1615-1	52	--	--	1.59	1.63	1.22	114 142 2.7 11.1
AF1758-7	56	--	--	1.26	1.57	1.26	79 114 3.5 16.7s
Waller Duncan LSD 6	-	-	--				0.47
<u>Russet/Processing Trial:</u>							
Russet Burbank	54	50	30	1.87	1.83	1.71	177 198 2.6 3.1
Gem Russet	63	57	33	1.71	1.33	1.39	191 219 3.7 3.8
Russet Legend	58	52	41	1.70	2.06	2.18	135 184 4.3 9.5
R. Norkotah	52	43	19	1.39	1.00	1.13	135 163 3.2 7.2
R. Norkotah #3	49	44	24	2.22	1.05	1.31	149 177 3.2 5.2
R. Norkotah #8	49	39	21	2.00	1.04	1.17	135 163 3.3 5.4
Shepody	57	40	21	2.40	1.84	1.60	121 142 2.2 4.6
Umatilla Russet	49	45	26	1.70	2.03	1.77	135 184 4.0 7.5
A84118-3	61	50	21	4.44	1.34	1.56	184 219 4.1 4.3
A84180-8	52	46	20	2.22	2.57	1.39	198 226 4.6 4.7
AO87277-6	57	48	28	2.00	2.39	1.93	86 128 4.7 11.8
W1348Rus	62	57	38	1.96	2.26	1.83	100 135 4.1 12.8
Waller Duncan LSD 4	4	3	6				0.83

Maine Table 4. Continued.

¹Stored at 38°F, 45°F, or 50°F, 85% R.H. from harvest until January 31 to February 13, 2001. Chip color scores are from an Agtron Model M-35 Process Analyzer (Agtron, Inc., Sparks, Nevada; calibrated with black disk "0" = 0 and white disk "90" = 90). Chips were crushed and reported values are means from four replicate samples. Each sample was read three times and was thoroughly mixed between readings. Higher numbers indicate lighter chip colors.

²Reconditioned samples were taken from 38°F and placed at 70°F for a 3-week period starting on January 12, 2001. See Agtron description under footnote #1.

³Skinning and shatter bruise were measured on September 13 (earlies), September 21 (mediums), October 3 (russets), or October 5 (lates), 2000. Approximately 10 lbs of tubers that exceeded 17/8" diameter were tumbled in a drum with three stones for 1 minute at 15 rpm. Tubers were then rated for skinning and shatter bruise. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected. The tubers were then placed in 45°F storage and rated for internal damage on December 29, 2000 where: 1=all tubers have no visible internal injury and 4=all tubers have severe internal injury.

⁴Abrasive peel test for biochemical aspects of blackspot bruise potential (see Pavek et al, APJ 62:511-517). The test was conducted on January 9-10, 2001. The index presented indicates the severity of discoloration where: 0=no tubers show discoloration and 5=all tubers have severe discoloration.

⁵Tubers were stored at 45°F, 85% R.H.

⁶Percentage sprout and weight loss following storage from harvest until March 14, 2001 at indicated temperature and 85% R.H. Codes "s" or "r" indicate heavily sprouted or samples with more than two spoiled tubers, respectively.

Maine Table 5. March through May chip color scores for NE-184 lines grown in central Maine (Exeter) and northern Maine (Presque Isle) during 2000 and chipped during the 2000-2001 storage season.

Variety or Breeding Line	Agtron M35 Score by Location, Chipping Date, and Storage Temperature ¹				
	Central Maine (East Corinth)		Northern Maine (Presque Isle) from 50F		
	March 3 45F	March 3 45F recond. 50F	March 8	Feb. 21	March 30 April 27
Atlantic	60.9	64.7	63.4	65.5	61.1
Eva (NY103)	65.2	66.2	67.5	66.6	61.5
Katahdin	36.6	42.1	56.6		65.4
Kennebec	54.1	59.8	61.8		
Snowden	64.3	64.6	64.9	64.6	57.7
Superior	49.3	51.3	60.9		54.7
Yukon Gold	42.5	43.6	55.1		
AF1437-1	49.0	53.9	58.9		
AF1615-1	43.6	43.9	59.5		
AF1758-7	40.6	48.6	54.3		
B0766-3	66.7	67.8	66.8	65.8	62.8
FL1533	65.0	66.2	66.0		63.5
FL1625	64.4	64.6	62.9		
FL1833	66.8	68.0	65.1		
NY102	67.3	65.9	66.8	66.2	64.7
NY112	66.3	65.7	63.9	64.2	68.5
NY115	67.4	68.5	65.5	68.3	56.7
W1242	68.8	66.7	64.7	64.7	65.7
W1313	63.7	62.7	63.0		
W-Duncan LSD (k=100)	4.8	3.3	3.6	2.3	2.0
					5.0

¹Chip color scores are from an Agtron Model M-35 Process Analyzer (Agtron, Inc., Sparks, Nevada; calibrated with black disk "0" = 0 and white disk "90" = 90). Chips were crushed and reported values are means from four replicate samples. Each sample was read three times and was thoroughly mixed between readings. Higher numbers indicate lighter chip colors. Reconditioned samples were warmed to room temperature (65 to 70F) and held at room temperature for two weeks.

Maine Table 6. Yield, marketable yield, percentage of yield by grade size distribution, and specific gravity (SG) for 14 medium-maturing, chipping varieties and advanced breeding lines grown at Exeter, Maine - 2001. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Total Yield cwt/A	US#1 Yield (cwt/A) ¹ >1 ⁷ / ₈ " % of std.	Stand (spacing) ²	Size Distribution by Class ³ (%)											
				1	2	3	4	5	6	1 ⁷ / ₈ to 4"			2 ¹ / ₂ to 4"	2 ¹ / ₂ to 4" SG	
										1 ⁷ / ₈	2 ¹ / ₄	2 ¹ / ₂			
Central ME Advanced Test- 112 days															
Atlantic (std)	449	351	100	332	97(10)	1	5	12	42	35	5	94	89	77	1.094
Snowden	420	396	113	367	94(14)	1	7	21	54	17	1	99	91	70	1.094
AF1856-1	356	268	76	262	96(10)	1	2	7	35	43	13	86	85	78	1.078
AF2082-12	296	257	73	238	99(10)	2	7	16	56	19	0	98	91	75	1.076
AF2115-1	358	262	73	235	97(10)	3	9	18	51	17	2	95	86	67	1.081
B1591-1	407	362	103	327	100(10)	6	9	26	45	13	0	94	85	58	1.097
B1598-4	380	350	100	326	100(10)	2	7	18	55	18	1	97	90	73	1.073
B1709-6	370	338	96	314	97(10)	2	7	16	54	20	2	97	90	74	1.088
B1826-1	382	322	92	301	96(10)	2	6	13	48	29	2	96	90	77	1.081
B1829-5	337	281	80	235	97(10)	4	15	28	42	6	4	92	77	48	1.086
B1884-9	464	384	109	363	96(10)	1	5	15	51	25	3	96	91	76	1.090
FL1533	432	369	105	340	100(8)	2	8	19	49	20	2	96	88	69	1.081
FL1625	307	257	73	226	100(8)	2	12	23	53	8	1	96	85	61	1.089
VW9503-4	443	372	106	342	100(10)	2	8	24	59	7	0	98	90	66	1.076
Waller Duncan															
LSD (k=100)		46	50		48							5	4	7	0.004

¹U.S.#1 yield = yield 1⁷/₈ to 4" excluding external defects.

²Inches between seedpieces noted within parentheses.

³Size classes: 1=1¹/₂ to 1⁷/₈"; 2=1⁷/₈ to 2¹/₄"; 3=2¹/₄ to 2¹/₂"; 4=2¹/₂ to 3¹/₄"; 5=3¹/₄ to 4"; 6=over 4".

Maine Table 7. Plant size, maturity at vinekill, tuber shape, tuber defects, hollow heart (HH) ratings, and chip color (CC) scores for 14 medium-maturing, chipping varieties and advanced breeding lines grown at Exeter, Maine - 2001. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Plant Data ¹			Tuber Data ¹			Tuber Defects (%)						HH	CC ³		
	Size	Maturity	Skin-	Shat-	Skin	Appear-	Sun-	Mis-	Growth	Scab	Rot	Rating ²				
	8-8	8-8 @VK	ning ⁴	ter	Tex-	Shape	ance	Tot.	burn	shapen	cracks					
					Bruise ⁴	ture										
Central ME Advanced Test- 112 days																
Atlantic (std)	7	6	5.8	6.07	3.33	5	2	5	16.3	15.3	0.9	0.0	0.0	0.1	3	69
Snowden	7	7	7.0	2.80	2.17	5	2	5	4.3	4.1	0.0	0.0	0.0	0.2	0	67
AF1856-1	5	5	6.0	5.62	4.31	7	3	7	12.9	10.5	0.0	0.4	1.4	0.6	2	70
AF2082-12	4	5	4.3	2.20	2.83	6	3	4	11.4	10.1	1.2	0.1	0.0	0.0	0	68
AF2115-1	6	6	6.0	3.30	2.27	8rs	3	7	23.7	22.2	0.1	0.0	1.1	0.2	0	61
B1591-1	5	5	5.0	2.17	2.77	5	2	5	5.0	3.9	0.0	0.7	0.0	0.4	0	69
B1598-4	4	4	3.8	2.17	3.72	6	2	6	5.3	4.3	0.6	0.0	0.0	0.5	1	66
B1709-6	7	7	6.8	3.95	3.68	6	2	7	5.5	4.0	0.6	0.0	0.5	0.5	0	69
B1826-1	7	6	6.5	4.35	3.83	6	2	6	12.6	7.6	1.9	3.1	0.0	0.1	0	72
B1829-5	6	6	5.8	2.33	3.00	4	3	7	9.5	7.3	1.9	0.0	0.0	0.3	0	72
B1884-9	7	7	6.3	3.58	3.11	5	2	5	14.2	13.4	0.3	0.5	0.1	0.0	0	70
FL1533	6	6	5.5	5.76	3.76	6	3	6pu	10.6	8.3	0.3	1.3	0.7	0.1	0	72
FL1625	7	6	6.0	2.50	3.11	5	4	4	12.9	9.7	0.0	1.5	1.6	0.0	0	67
VW9503-4	6	6	5.0	3.12	3.35	7rs	4	7	14.3	12.1	0.0	0.5	1.7	0.0	0	68

¹See standard NE-184 rating system for key to codes. rs=russet scab on tubers; pu=purple coloration around eyes.

²Hollow heart rating equals the number of hollow tubers found per 40 large tubers cut and examined.

³Chip color from 50F -- Agtron M35 (higher values indicate lighter color): >60 acceptable; dp=dark pith and medula tuber. The chipping date was December 11, 2001. Waller Duncan LSD (K=100) for chip color = 2.

⁴Skinnering and shatter bruise were measured on September 21, 2001. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected.

Maine Table 8. Yield, marketable yield, percentage of yield by grade size distribution, and specific gravity (SG) for 21 round-white varieties and advanced breeding lines grown at St. Agatha, Maine - 2001. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Total Yield cwt/A	US#1 Yield (cwt/A) ¹ >1 ⁷ / ₈ " % of std.	% Stand (spacing) ² 7-6	Size Distribution by Class ³ (%)													
				1 2 3 4 5 6 to 4" 1 ⁷ / ₈ 2 ¹ / ₄ 2 ¹ / ₂ to 4" 4" SG													
<u>St. Agatha Advanced Round-white Test - 117 days</u>																	
Atlantic (std)	351	312 100	279	95 (10)	3	10	20	48	17	2	95	85	64	64	1.090		
Katahdin	323	277 89	226	88 (8)	5	17	27	40	10	0	95	77	50	50	1.077		
Kennebec	319	195 62	177	83 (8)	2	9	15	49	21	3	94	86	70	70	1.077		
Superior	270	235 75	188	95 (10)	4	19	34	36	6	0	96	76	43	43	1.089		
AF1470-6	312	263 84	233	97 (10)	3	11	20	40	24	2	95	84	64	64	1.065		
AF1764-3	292	259 83	231	92 (10)	3	11	22	46	18	1	97	86	64	64	1.068		
AF1921-4	321	289 93	236	94 (10)	4	17	30	43	5	0	96	78	49	49	1.083		
AF2069-5	350	283 91	249	100 (10)	3	12	24	46	15	0	97	85	61	61	1.070		
ARS-W95-6498-5	251	184 59	147	95 (10)	7	19	26	37	11	1	92	73	48	48	1.077		
ARS-W95-6553-1	288	249 80	168	98 (10)	8	30	28	25	8	1	91	61	33	33	1.085		
ARS-W96-4654-1	345	307 98	227	99 (10)	6	25	37	30	2	0	94	69	32	32	1.087		
ARS-W96-4662-2	257	202 65	133	90 (10)	12	30	22	29	7	0	88	58	36	36	1.078		
ARS-W96-40006-1	264	225 72	160	99 (10)	8	27	37	24	3	0	92	65	28	28	1.085		
ARS-W96-40022-5	286	233 75	160	100 (10)	9	28	29	28	4	0	91	62	33	33	1.099		
B1752-5	243	123 39	96	96 (10)	7	20	30	40	3	0	93	74	44	44	1.072		
B1801-6	328	242 78	207	94 (10)	3	14	23	50	10	0	97	83	60	60	1.080		
B1870-17	352	286 92	226	97 (10)	6	20	30	34	10	0	94	74	44	44	1.076		
B1880-6	311	274 88	170	100 (10)	9	35	37	18	1	0	91	56	19	19	1.090		
SC8801-2	318	285 91	261	87 (8)	2	8	24	52	13	1	97	89	65	65	1.072		
VW9309-9	392	312 100	272	98 (10)	4	12	24	49	11	0	96	84	60	60	1.080		
VW9501-5	317	279 89	245	98 (10)	3	12	22	48	15	0	97	85	64	64	1.069		
W-D LSD (k=100)	37	59	52								4	7	10	10	0.003		

¹U.S.#1 yield = yield 1⁷/₈ to 4" excluding external defects.

²Inches between seedpieces noted within parentheses.

³Size classes: 1=1¹/₂ to 1⁷/₈"; 2=1⁷/₈ to 2¹/₄"; 3=2¹/₄ to 2¹/₂"; 4=2¹/₂ to 3¹/₄"; 5=3¹/₄ to 4"; 6=over 4".

Maine Table 9. Plant size, maturity at vinekill, tuber shape, tuber defects, hollow heart (HH) ratings, and chip color (CC) scores for 21 round-white varieties and advanced breeding lines grown at St. Agatha, Maine - 2001. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Plant Data ¹			Tuber Data ¹			Tuber Defects (%)				HH	
	Size 8-2	Maturity 23 @VK	Skin- ning ⁴	Shat- ter	Skin Tex- ture ⁴	Appear- Shape	Tot. burn	Mis- shapen	Growth cracks	Scab	Rot Rating ²	CC ³
<u>St. Agatha Advanced Round-white Test - 117 days</u>												
Atlantic (std)	7	6	5.8	1.48	2.00	5	1	5	6.9	1.7	0.0	64
Katahdin	8	7	6.8	2.03	2.00	8	2	7	9.7	3.5	0.0	58
Kennebec	8	8	6.8	1.12	1.60	7	4	3	35.4	3.9	0.0	61
Superior	7	4	4.3	1.11	2.75	6	2	5	9.8	0.6	1.1	63
AF1470-6	5	5	5.0	1.50	1.46	7	2	6	11.2	2.5	0.0	48
AF1764-3	8	8	8.0	1.93	2.00	7	2	6	8.6	1.4	0.1	64
AF1921-4	7	5	5.0	1.19	1.58	6	2	7	5.9	2.7	0.2	61
AF2069-5	6	5	5.8	1.85	2.23	6	3	4	16.7	1.3	0.0	56
ARS-W95-6498-5	7	6	5.8	1.68	1.29	5	2	2	20.3	0.2	0.1	64
ARS-W95-6553-1	7	5	5.5	2.00	2.09	6	3	4	5.4	2.7	1.6	56
ARS-W96-4654-1	8	5	4.8	1.54	1.39	7	1	7	5.5	0.7	0.2	66
ARS-W96-4662-2	7	6	6.3	1.58	1.28	7	2	6pr	10.6	3.2	4.2	62
ARS-W96-40006-1	7	4	5.3	1.97	1.66	6	3	3	8.1	0.4	0.5	64
ARS-W96-40022-5	7	4	4.0	1.19	2.12	7	2	4	10.0	4.5	0.3	65
B1752-5	7	7	5.3	1.82	1.33	6yl	2	6	42.0	0.6	0.0	57
B1801-6	7	6	5.3	1.48	2.15	7yl	4	6	24.3	0.9	0.6	61
B1870-17	6	4	4.5	1.23	1.77	5	1	3	13.5	0.5	0.0	59
B1880-6	7	5	4.3	1.08	2.13	7yl	3	6	2.9	1.2	0.0	64
SC8801-2	8	7	6.8	1.84	2.03	6	4	7	7.5	2.4	0.3	53
VW9309-9	9	7	7.0	1.81	2.06	5pu	3	4	17.4	0.2	1.9	60
VW9501-5	7	6	5.8	2.00	2.26	5	3	5	9.6	2.6	0.0	53

¹See standard NE-184 rating system for key to codes. pr=many pear-shaped tubers; pu=purple skin patches; yl=yellow skin color.

²Hollow heart rating equals the number of hollow tubers found per 40 large tubers cut and examined. The number cut is indicated when sample size is less than 40.

³Chip color from 45 and 50F -- Agtron M35 (higher values indicate lighter color): >60 acceptable; dr=dark vascular ring and ds=dark stem-end defects in the chips. The chipping date was December 4, 2001.

⁴Waller Duncan LSD (K=100) for chip color = 3.

⁵Skinnering and shatter bruise were measured on October 12, 2001. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected.

Maine Table 10. Yield, marketable yield, percentage of yield by grade size distribution, and specific gravity (SG) for 8 russet/processing (long-tuber-type) varieties and advanced breeding lines grown at St. Agatha, Maine - 2001. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Total Yield cwt/A	US#1 Yield (cwt/A) ¹ >1½" % of std.	% Stand (spacing) ² 7-6	Size Distribution by Class ³ (%)												SG	
				<div>> > 8oz 12 oz. >3" >3½"</div>													
				1	2	3	4	5	8oz	12 oz.	>3"	>3½"					
<u>St. Agatha Advanced Russet/processing Test- 117 days</u>																	
R. Burbank (std)	296	212 100 156	100(16)	27	50	15	8	0	23	8	71	45	1.079				
R. Norkotah	279	253 119 195	99(14)	23	42	24	6	5	35	11	76	53	1.071				
Shepody	288	90 42 73	96(10)	19	41	31	6	3	40	9	79	58	1.080				
AF1808-18	260	116 55 104	98(16)	9	42	31	13	4	49	17	92	75	1.082				
AF1866-8	277	184 87 151	100(16)	17	43	26	9	5	40	14	80	60	1.078				
AF2061-2	274	231 110 183	97(16)	21	44	27	8	1	35	8	78	57	1.075				
AF2133-17	220	98 46 75	97(16)	26	55	13	5	0	19	5	72	41	1.075				
B1649-8	256	227 107 182	98(16)	20	44	27	8	1	36	9	77	50	1.074				
Waller Duncan																	
LSD (k=100)	41	62	50						15	ns	7	10	0.002				

¹U.S.#1 yield = yield >1½ " excluding external defects.

²Inches between seedpieces noted within parentheses.

³Size classes: 1= <4 oz; 2=4 to 8 oz.; 3=8 to 12 oz.; 4=12 to 16 oz.; 5= >16 oz.

Maine Table 11. Plant size, maturity at vinekill, tuber shape, tuber defects, hollow heart (HH) ratings, and chip color (CC) scores for 8 russet/processing (long-tuber-type) varieties and advanced breeding lines grown at St. Agatha, Maine - 2001. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Plant Data ¹			Tuber Data ¹			Tuber Defects (%)					HH	CC ³		
	Size 8-2	Maturity 8-23 @VK	Skin- ning ⁴	Shat- ter	Skin Tex-	Appear- Shape	ance	Tot. burn	Mis- shapen	Growth cracks	Scab			Rot	
															Rating ²
Bruise ⁴ ture															
St. Agatha Advanced Russet/processing Test- 117 days															
R. Burbank (std)	8	7	7.0	1.64	1.84	4nr	6	4	28.1	0.0	16.5	0.0	11.6	0.0	54
R. Norkotah	7	5	5.0	1.19	1.81	3	6	5	9.5	3.2	4.7	1.6	0.1	0.0	56
Shepody	7	5	5.8	1.90	1.95	7wh	7	5	68.9	4.6	13.2	0.0	51.0	0.0	62
AF1808-18	7	5	5.0	3.11	2.83	3	7	6pr	54.4	11.2	2.9	0.5	39.8	0.0	59
AF1866-8	6	4	4.3	1.29	2.65	3nr	6	5	33.7	10.8	11.3	0.7	11.0	0.0	63
AF2061-2	5	5	4.5	1.65	1.95	1nr	6	4	15.6	2.3	7.3	0.2	5.8	0.0	52
AF2133-17	7	6	6.0	1.75	1.92	3	6	4pr	58.2	0.0	6.3	0.0	51.9	0.0	61
B1649-8	7	5	6.0	1.00	3.24	2	6	7	10.8	0.3	2.3	0.6	7.7	0.0	49

¹See standard NE-184 rating system for key to codes. wh=white skin; nr=nonuniform russetting; pr=many pear-shaped.

²Hollow heart rating equals the number of hollow tubers found per 40 large tubers cut and examined.

³Chip color from 50F -- Agron M35 (higher values indicate lighter color): >60 acceptable; dr=dark vascular ring. The chipping date was December 5, 2001. Waller Duncan LSD (K=100) for chip color = 3.

⁴Skinning and shatter bruise were measured on October 12, 2001. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected.

Maine Table 12. Yield, marketable yield, percentage of yield by grade size distribution, and specific gravity (SG) for 14 red- and purple-skinned varieties and advanced breeding lines grown at Aroostook Research Farm, Presque Isle, Maine - 2001. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Total Yield cwt/A	US#1 Yield >1 7/8" % of >2 1/4" std.	Yield (cwt/A) ¹	% Stand (spacing) ²	50% Emerg. Date	Size Distribution by Class ³ (%)										
						1	2	3	4	5	6	1 7/8 to 4"	2 1/4 to 4"	2 1/2 to 4"	SG	
Advanced Red Test- 108 days																
Norland, DR (std)	236	208	100	122	92 (8)	6-10	7	38	33	21	0	0	93	54	21	1.077
AF2138-1	192	150	72	52	93 (8)	6-14	20	52	26	2	0	0	80	28	2	1.094
AF2151-1	281	237	114	171	94 (8)	6-14	7	26	39	27	1	0	93	67	28	1.081
B0811-4	153	109	52	38	93 (8)	6-14	23	51	24	3	0	0	77	27	3	1.098
B0984-1	237	208	100	161	98 (8)	6-14	8	21	34	32	6	0	92	72	38	1.078
B1145-2	200	157	75	70	89 (8)	6-13	16	47	29	8	0	0	84	37	8	1.075
B1491-5	181	141	68	60	88 (8)	6-17	20	45	29	6	0	0	80	35	6	1.082
B1521-2	182	144	69	73	98 (8)	6-14	19	40	28	9	3	0	81	41	12	1.068
B1523-4	280	241	116	148	84 (8)	6-12	11	34	35	19	1	0	89	55	20	1.076
B1529-1	228	199	96	132	89 (8)	6-10	9	31	26	29	6	0	91	60	34	1.075
B1758-3	224	194	93	128	84 (8)	6-14	11	30	33	23	2	0	89	59	26	1.076
B1758-4	259	227	109	149	92 (8)	6-12	10	31	33	26	1	0	90	59	26	1.079
B1763-4	206	173	83	87	94 (8)	6-14	14	43	27	16	0	0	86	43	16	1.083
B1816-5	231	200	96	135	93 (8)	6-14	8	30	43	18	1	0	92	62	19	1.087
Waller Duncan																
ISD (k=100)	27	30		26									6	11	7	0.004

U.S.#1 yield = yield $1\frac{7}{8}$ to 4" excluding external defects.

²Inches between seedpieces noted within parentheses.

³Size classes: 1=1½ to 1⅞"; 2=1⅞ to 2¼"; 3=2¼ to 2½"; 4=2½ to 3¼"; 5=3¼ to 4"; 6=over 4".

Maine Table 13. Plant size, maturity at vinekill, tuber shape, tuber defects, and hollow heart (HH) ratings, for 14 red- and purple-skinned varieties and advanced breeding lines grown at Aroostook Research Farm, Presque Isle, Maine - 2001. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Plant Data ¹			Tuber Data ¹			Tuber Defects (%)					HH Rating ²			
	Size	Maturity	Skin-	Shat-	Skin	Appear-	Sun-	Mis-	Growth	Scab	Rot				
	7-20	8-15 @VK	ning	ter	Tex-	Shape	Total	burn	shapen	cracks					
Bruise															
Advanced Red Test- 108 days															
Norland, DR (std)	6	3	1.0	1.80	2.70	7nu	2	5mr	5.0	1.9	1.4	1.7	0.0	0.0	0
AF2138-1	6	4	4.0	4.87	3.00	6snt	3pfl	5dpur	2.0	0.0	1.8	0.2	0.0	0.0	0
AF2151-1	7	4	3.3	4.23	3.03	5nu	4	2pur	9.7	1.9	6.6	1.2	0.0	0.0	0
B0811-4	5	6	3.8	1.43	3.31	7	2yf	6mr	7.5	0.4	7.2	0.0	0.0	0.0	0
B0984-1	8	5	5.3	4.45	3.59	5nu	2	4mr	4.7	0.0	2.5	2.3	0.0	0.0	1
B1145-2	6	3	1.0	1.56	2.96	6	3	7mr	6.5	1.6	0.0	4.8	0.0	0.0	0
B1491-5	5	5	1.5	1.90	2.20	6	2pyf	6mr	2.9	1.2	1.0	0.6	0.0	0.0	0
B1521-2	5	7	6.8	4.73	1.69	5sk	2	5mr	4.3	0.7	0.1	3.4	0.0	0.1	0
B1523-4	8	5	5.0	5.17	3.33	5snt	3	4dr	3.9	0.0	1.4	2.5	0.0	0.0	0
B1529-1	8	7	6.5	4.57	4.03	5nu	4	4dpur	4.2	0.0	1.5	2.7	0.0	0.0	0
B1758-3	6	6	5.3	4.23	3.13	6	3	6mr	2.9	0.9	0.6	1.4	0.0	0.0	0
B1758-4	7	6	5.8	4.20	2.80	6snt	2	6mr	2.3	0.4	1.6	0.3	0.0	0.0	0
B1763-4	5	4	1.8	2.14	2.03	7	2	7dpur	2.4	0.5	1.7	0.2	0.0	0.0	0
B1816-5	5	5	3.3	3.79	3.75	6snt	4yf	5dpur	6.1	0.9	3.7	1.5	0.0	0.0	0

¹See standard NE-184 rating system for key to codes. dr=dark red skin; mr=medium red; dpur=dark purple; pur=purple; nu=non-uniform color; snt=netting detracts from appearance; pfl=mottled purple flesh; sk=severe skinning at harvest; yf=yellow fleshed; pyf=pale yellow fleshed.

²Hollow heart rating equals the number of hollow tubers found per 40 large tubers cut and examined. Skinning and shatter bruise were measured on September 27, 2001. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected.

Maine Table 14. Bruise test and washed skin color evaluations for 8 red- and purple-skinned varieties and advanced breeding lines grown at Aroostook Research Farm, Presque Isle, Maine - 2000. (Advanced Breeding Line Variety Trial, Pre-NE-184)

Variety	Bruise Test Results ¹			Washed Skin Color ²		Flesh Color
	Skinning	Shatter	Internal	Index	%Good to Excellent	
<u>Advanced Red Test (2000)</u>						
Dark Red Norland (std)	1.69	1.44	1.58	3.15	62	White
B0811-4	1.22	1.24	1.57	2.65	28	Pale yellow
B1102-3	2.18	1.40	1.84	1.82	13	Off white
B1145-2	1.74	1.64	1.60	2.53	39	White
B1491-5	1.35	1.29	1.56	1.84	18	Pale yellow
B1492-12	1.61	1.32	1.51	1.64	0	White
B1495-6	1.53	1.29	1.56	2.21	22	V. pale yel.
B1529-1 (dark purple)	2.19	1.66	1.98	1.72	13	White
Waller Duncan LSD (k=100)				0.69	31	

¹Skinning and shatter bruise were measured on September 22, 2000. Approximately 10 lbs of tubers that exceeded 1 7/8" diameter were tumbled in a drum with three stones for 1 minute at 15 rpm. Tubers were then rated for skinning and shatter bruise. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected. The tubers were then placed in 45°F storage and rated for internal damage on December 29, 2000 where: 1=all tubers have no visible internal injury and 5=all tubers have severe internal injury.

²Washed appearance ratings were conducted on March 20, 2001. Individual tubers were rated for skin appearance using the following scale: 1=poor; 2=fair; 3=good; 4=excellent. The index value is a weighted average for the 10 lbs of tubers washed for each variety in each replication.

Maine Table 15. Bruise test and blackspot bruise potential for NE-184 varieties grown at Central Maine (Exeter) and Northern Maine (St. Agatha) - 2000

Variety	Bruise Test Results ¹			Blackspot Bruise Potential ²
	Skinning	Shatter	Internal	
<u>2000 Exeter, Maine NE184</u>				
<u>Round-white and Chipping Test:</u>				
Atlantic (std)	1.34	1.95	1.18	0.77
Eva (NY103)	2.12	1.77	1.07	2.36
Katahdin	3.08	2.38	1.29	2.12
Kennebec	2.38	2.03	1.13	2.99
Snowden	1.60	1.54	1.71	2.68
Superior	1.31	2.67	1.26	2.55
Yukon Gold	1.59	1.59	1.31	1.56
AF1437-1	1.71	2.78	1.52	1.87
AF1615-1	1.76	1.52	1.10	1.68
AF1668-60	3.42	1.65	1.12	1.40
AF1758-7	1.97	1.57	1.41	0.98
B0766-3	1.76	3.00	1.35	1.75
FL1533	1.75	2.39	1.14	2.83
FL1625	1.00	1.88	1.46	1.66
FL1833	1.83	3.34	1.27	1.20
NY102	1.82	1.78	1.50	4.48
NY112	1.80	1.38	1.19	1.41
NY115	1.80	2.02	1.02	1.34
W1242	1.53	2.45	1.30	1.71
W1313	2.10	1.94	1.48	1.58
Waller Duncan LSD (k=100)				0.72
<u>2000 St. Agatha NE184</u>				
<u>Round-whites and Reds:</u>				
Atlantic (std)	1.75	1.56	1.61	1.28
Eva (NY103)	2.03	1.97	1.50	1.25
Katahdin	2.46	1.89	1.36	1.52
Kennebec	2.16	1.48	1.40	1.56
Snowden	1.29	1.46	1.68	2.42
Superior	1.47	1.94	1.35	1.48
Yukon Gold	2.25	2.00	1.63	0.98
AF1437-1	1.73	2.82	1.30	2.07
AF1615-1	2.15	1.85	1.18	0.92
AF1758-7	1.78	1.42	1.32	1.12
AF1763-2	1.24	1.60	1.26	1.65
B0766-3	2.04	2.29	1.46	1.30
NY102	1.64	1.55	1.33	3.49
NY112	1.86	1.47	1.20	1.55
NY115	1.71	1.15	1.12	1.65
<u>Reds:</u>				
Chieftain	1.69	2.28	1.47	0.80
Norland, Dark Red	1.64	1.88	1.31	1.30
CO86218-2	1.83	1.00	1.12	1.34
W1874-1R	1.82	1.49	1.26	3.21
Waller Duncan LSD (k=100)				0.57

Maine Table 15. Continued.

Variety	Bruise Test Results ¹			Blackspot Bruise Potential ²
	Skinning	Shatter	Internal	
<hr/>				
<u>2000 St. Agatha NE-184</u>				
<u>Russets and Longs:</u>				
R. Burbank (std)	1.41	1.31	1.31	2.58
Gem Russet	1.50	1.63	1.88	1.85
R. Legend	1.25	1.69	1.88	1.68
R. Norkotah	1.16	1.04	1.19	2.36
R. Norkotah #3	1.00	1.11	1.53	2.62
R. Norkotah #8	1.52	1.17	1.20	2.82
Shepody	1.89	2.16	1.63	1.18
Umatilla Russet	1.64	1.92	1.28	1.98
A84118-3	1.85	1.73	1.38	0.94
A84180-8	1.21	2.04	1.28	2.60
W1348Rus	1.21	1.44	1.79	3.01
Waller Duncan LSD (k=100)				0.81

¹Skinning and shatter bruise were measured on October 5 (Exeter) and October 24-25 (St. Agatha), 2000. Approximately 10 lbs of tubers that exceeded 1 7/8" diameter were tumbled in a drum with three stones for 1 minute at 15 rpm. Tubers were then rated for skinning and shatter bruise. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected. The tubers were then placed in 45°F storage and rated for internal damage on December 29, 2000 or January 2, 2001 where: 1=all tubers have no visible internal injury and 5=all tubers have severe internal injury.

²Abrasive peel test for biochemical aspects of blackspot bruise potential (see Pavek et al, APJ 62:511-517). All samples were peeled on January 11 or 12, 2001. The index presented indicates the severity of discoloration where: 0=no tubers show discoloration and 5=all tubers have severe discoloration.

Maine Table 16. Bruise test for advanced breeding lines grown at Central Maine (Exeter) and Northern Maine (St. Agatha) - 2000.

Variety	<u>Bruise Test Results¹</u>		
	Skinning	Shatter	Internal
<u>2000 Exeter, Maine Advanced</u>			
<u>Round-white and Chipping Test:</u>			
Atlantic (std)	2.00	1.96	1.42
Snowden	1.35	1.31	1.34
AF1668-60	3.24	2.08	1.00
AF1775-2	2.75	2.21	1.29
AF1845-7	2.71	1.56	1.61
AF1921-4	1.65	1.83	1.36
AF1921-9	1.63	1.68	1.27
AF1949-1	1.71	1.85	1.56
B0178-34	2.00	2.00	1.44
B1240-1	2.50	1.40	1.43
B1327-6	1.55	1.90	1.41
FL1533	2.55	2.50	1.29
FL1625	1.25	1.50	1.48
<u>2000 St. Agatha Advanced</u>			
<u>Round-whites and Reds:</u>			
Atlantic (std)	2.04	1.67	1.80
Katahdin	2.27	1.58	1.45
Kennebec	3.24	1.84	1.32
Superior	1.82	1.91	1.15
AF1291-44	1.96	2.38	1.79
AF1470-6	2.44	1.64	1.38
AF1475-20	2.09	2.00	1.53
AF1569-2	2.20	1.32	1.28
AF1611-9	1.56	1.75	1.69
AF1764-3	2.27	2.39	1.88
AF1846-2	2.41	1.34	1.59
AF1938-3	2.19	2.00	1.69
ARS-W95-6498-5	1.76	1.27	1.39
ARS-W95-6527-1	1.68	2.18	2.18
ARS-W95-6550-2	1.96	1.60	1.27
ARS-W95-6553-1	2.23	2.31	1.64
B1425-9	1.96	1.67	1.74
B1497-22	2.38	1.91	1.42
B1591-1	1.38	2.21	2.08
B1598-4	1.80	2.14	1.40
B1624-22	2.13	1.90	2.03
B1722-5	2.35	1.97	1.32
B1752-5	1.84	1.50	1.69
SC8801-2	2.25	2.00	1.50
W1431	2.79	1.67	1.34
W1443	1.68	1.25	1.34

Maine Table 16. Continued.

Variety	Bruise Test Results ¹		
	Skinning	Shatter	Internal
<u>2000 St. Agatha Advanced</u>			
<u>Russets and Longs:</u>			
Russet Burbank (std)	1.33	1.35	1.32
Russet Norkotah	1.23	1.21	1.31
Shepody	1.75	2.05	1.55
AF1753-16	1.57	1.70	1.54
AF2061-2	1.62	1.16	1.45
AF2129-1	1.40	1.72	1.47
B1409-2	1.27	1.65	1.77
B1463-1	1.21	2.10	2.19
B1649-8	1.06	2.57	2.11
MN15620	1.88	1.58	1.67

¹Skinning and shatter bruise were measured on October 5 (Exeter) and October 24-25 (St. Agatha), 2000. Approximately 10 lbs of tubers that exceeded 1 $\frac{7}{8}$ " diameter were tumbled in a drum with three stones for 1 minute at 15 rpm. Tubers were then rated for skinning and shatter bruise. Data presented represent indices where: 1=all tubers have 0% of surface affected and 9=all tubers have 100% of surface affected. The tubers were then placed in 45°F storage and rated for internal damage on January 2, 2001 where: 1=all tubers have no visible internal injury and 5=all tubers have severe internal injury.

Maine Table 17. Sensory evaluation results for NE-184 and advanced breeding lines grown at Aroostook Research Farm, Presque Isle, ME - 2000.

Variety	<u>Baked Test Results¹</u>				<u>Boiled Test Results²</u>	
	Color	Flavor	Texture	Overall	Sloughing	Color
<u>Early/Medium Maturity Test:</u>						
Superior (std)	6.68	6.20	6.04ab	6.16		
Atlantic	7.12	6.28	6.72a	6.48 =	-	+
AF1437-1	6.52	5.88	5.52b	5.88 -	-	=
NY102	7.08	6.04	6.68a	6.28 =	+	+
AOV Results (Pr > F)	ns	ns	0.04	ns		
<u>Medium/Late Maturity Test:</u>						
Katahdin (std)	6.85	6.81	6.81	7.00		
Kennebec	7.27	6.35	6.19	6.50 =	-	+
Eva	6.96	6.85	6.96	7.08 =	=	=
AF1615-1	7.46	6.73	6.77	6.88 =	-	+
NY112	7.23	6.65	6.96	6.73 =	-	=
AOV Results (Pr > F)	ns	ns	ns	ns		
<u>Russet/long-white Test:</u>						
Russet Burbank (std)	6.48b	6.48	6.40b	6.44		
Gem Russet	6.84ab	6.56	6.56b	6.92 =	-	-
AF1753-16	7.40a	6.48	7.48a	6.96 +	-	+
AOV Results (Pr > F)	0.03	ns	0.006	ns		

¹Similar-sized potatoes were baked for 60 minutes at 425F and were turned once after 30 minutes. Panelists were provided with 1/4 sections of baked test and standard variety potatoes. They were asked to rate the color, flavor, texture, and overall quality of each using a 9-point hedonic scale where 1=disliked very much and 9=liked very much. Water was provided and panelists were asked to rinse palate before and after each sample. Evaluations conducted courtesy of Dr. Al Bushway, Dept. of Food Science and Human Nutrition, University of Maine, Orono, ME.

²Similar-sized potatoes were peeled and boil at 180F for approximately 20 minutes or until cooked. Approximately six potatoes per sample were used. Panelists were provided with a plate of boiled test and standard variety potatoes. They were asked to visually rate the color and sloughing using a 9-point hedonic scale where 1=disliked very much and 9=liked very much. Evaluations conducted courtesy of Dr. Al Bushway, Dept. of Food Science and Human Nutrition, University of Maine, Orono, ME.

Maine-Breeding

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Introduction

The major goal of the program is to develop new potato varieties which are early maturing, high-yielding, with better tuber quality and resistance to diseases than commercially grown varieties. Three specific types of varieties are being sought: round white fresh market, chipping, and a dual purpose long russet for french fry and fresh market.

Seed and Seedling Production

A total of 55 parents were used in 2001 crosses- 13 russets, 6 round whites, 3 chippers, 10 late blight resistant; and 12 were resistant to one or more of the following diseases: Verticillium wilt, potato leafroll virus, early blight and scab. About 2,380 true seeds were produced from nine cross combinations. Open-pollinated berries were also harvested from 30 field-grown clones and varieties yielding about 1,200,000 true seeds.

Sowing of true seeds from the previous year's crossing was done in April. A total of 11,176 "first" seedling tubers were harvested from these plants. An additional 580 "second" tubers were harvested for planting in the disease test plots.

Method of Planting

Seed increase, selection plots and yield tests were conducted on Gartley Farm; disease tests on Aroostook Research Farm; and the quality tests on the College Farm. Fertilization rates were: 120 lbs N/acre on early plots, 140 lbs N/acre on medium maturity test and 160lbs N/acre on late maturity test and disease plots. Seed spacing was 10 inches for most tests, 30 inches for single hills, 20 inches for hollow heart and 15 inches for the russet test. Yield tests, chip test, hollow heart, and bruise tests were planted following a randomized complete block design with four replications.

Selections

A total of 185 (0.7%) selections from the single hill plots and 73 (36%) from the 12-hill plots were

saved for further testing (Table 1). An additional 56 entries from the third-year selections were tested in 20-hill, 60-hill and disease plots (Tables 2, 3 and 11). From the germplasm enhancement materials (in cooperation with Dr. Robert Hanneman, USDA) 26 selections were saved from a total of 2,656 planted entries.

Yield Trials

In the seven yield trials conducted, 137 entries were compared to standard check varieties. Results show that 35 entries yielded better than the control varieties, 65 entries had specific gravities higher than the controls, and 19 entries were better than the controls in both respects (Tables 4 to 10).

Disease Tests

The summary of selections tested for resistance to the diseases is shown in Table 11. Complete results are shown in Tables 12 and 13.

Physiological Disorders

Results of the evaluation are also shown in Table 12. Among the disorders evaluated are hollow heart, bruising shatter, bruising black heart, total glycoalkaloid content, greening and purple streak.

Greening evaluation was conducted by placing two tubers each of the 49 selections and Kennebec under florescent lights for 115 hours after which they were rated for greening and eye number. The first 91 hours were set at 42 foot candles and 50°F; the last 24 hours were set at 54 ft. candles and 70°F. Twenty-six selections were rated 2.5 or less for greening. Kennebec averaged 3.9.

Seventeen varieties and selections grown in unhilled test plots were examined for the presence of purple streak. Eight selections had no purple streak. For eight selections, including Mainestay, all of the purple streak was in sunburned tubers (Table 14.) In a separate experiment, six varieties were grown in hilled and unhilled replicated plots. Purple streak in unhilled plots ranged from 7.9% for Mainestay to 25.4% for Portage. Hilling eliminated purple streak in two varieties and greatly reduced it in the other three (Table 15.)

Processing and Storage Tests

Chipping Test. The 2001 chip test (Table 16) included thirty-eight numbered selections and five

named varieties. Samples were processed in December, February and April after storage at 12.8°C (55 F), 10°C (50° F), 7.2°C (45°F), 5°C (41°F), and 3.3 °C (38°F). (The 3.3°C material was reconditioned for three weeks at 21.1°C (70°F) before cooking.

French Fry Test. This test included 30 selections and three checks. Samples were prepared in the pilot plant at the University of Maine in Orono as in past years. Finish frying was done at Aroostook Research Farm. Evaluation was made by Bart Bradbury (McCain Foods), Dan Ronis (McCain Foods), and Randy Smith (Aroostook Farm). Twelve selections had significantly better color than Russet Burbank, and one had better texture. The most outstanding lines were AF1866-8, AF2199-6, AF 2272-1 and AF2278-1 (Table 17).

Sensory Evaluation. Nine selections from the 2000 growing season were subjected to sensory evaluation. Samples were baked, sliced in two, and presented to a panel for comparison to Superior, Katahdin, or Russet Burbank (Table 18).

Storage Test. Nine selections and three check varieties were grown for bin storage test. Fifty-pound samples in mesh bags were placed under a ten-foot high pile of potatoes. Pressure bruising index and percent moderate and severe pressure bruise were calculated in April after the storage bin was emptied. Results are shown in Table 19.

Promising Selections

Selections from the different advanced trials include the following: **Early** - AF 2314-1; **Medium** - AF 2290-8, AF 2314-2, AF 2333-1, AF 2351-6; **Medium Late** - AF 2278-1, AF 2291-10, AF 2351-3, AF 2351-4; **Late** - AF 2285-5, AF 2305-1, AF 2341-1, AF 2349-3 and AF 2363-9.

The more advanced selections include the following: AF1808-18, AF1866-8, 1938-3 and SC8801-2.

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Dr. Bill Brodie of Cornell University, for screening for golden nematode resistance;

Dr. Rodney Bushway and Brian Perkins for the glycoalkaloid content analysis; and

Dr. Al Bushway for the sensory tests.

Footnotes for the Tables

1. Fertility: Blank = no flowers produced; 0 = no fruits; - = few fruits; m = moderate amount of fruits; + = very fruitful
 2. Earliness: E = early; M = medium; L = late
 3. Tuber Skin Color & Texture
R = russet; W = white; C = cream; Y = yellow; B = buff; Re = red; Pu = purple; Pi = pink; N = netted; L = light; D = dark;
Super scripts refer to eye color; ir = irregular color
 4. Appearance: 1 = poor to 5 = excellent
 5. Tuber Shape: R = round; O = oblong; L = long; Fl = flat; ir = irregular shape
 6. Tuber Size: S = small; M = medium; L = large
 7. Tuber Set: + = many; m = moderate amount; - = few
 8. Includes all sizes (field run).
 9. Weight loss from harvest to January, stored at 38° F (3.3°C) in wooden boxes.
 10. Color from National Potato Chip Institute Chart 1206U
where 1 = very light and 10 = very dark.
 11. Tubers stored for two months at no colder than 50°F (10°C).
 12. Tubers stored four months at 38°F (3.3°C), then reconditioned three weeks at 70°F (21.1°C).
 13. Average of two eight-ounce tubers.
 14. Average of two eight-ounce tubers; 0 = no discoloration; 5 = very dark green; average of external color, internal color, and depth of color.
- * Reduced stand or diseased plants removed.
** Only four hills harvested.

Maine Breeding Table 1. Seedlings grown in and selected from 12 hill plots at Gartley Farm, Presque Isle, Maine, 2001.

Code Name	Pedigree	Fertility 1/	Maturity 2/	Color 3/	Appearance 4/	Shape 5/	Size 6/	Set 7/	Specific Gravity	Yield Cwt./A 8/	% Weight Loss 9/	Chip Color 50°F 11/	Chip Color 10/ 38°F 12/
AF 2376-1	MSG 274-3Y x EB 8109-1	M	ML	C	3+	R	S	M	1.088	217	4.2	4.0	7.0
AF 2376-3	" x "	O	L	C	2	R	S	M	78	233	4.1	5.0	9.0
AF 2376-4	" x "	O	M	B	3	O	M	M	93	322	2.1	5.0	6.0
AF 2376-5	" x "	+	M	W	4	R	S	-	87	256	3.0	6.0	8.0
AF 2382-1	MaineChip x EB 8109-1	-	L	B	3	R	S	M	101	243	3.4	4.0	5.0
AF 2402-1	AO 82611-7 x AF 295-10	-	M	C	3	RO	ML	+	82	421	2.1	7.0	9.0
AF 2413-1	AF 1291-113 x AC 83064-6	-	ML	B	4	L	ML	M	98	300	2.8	4.2	4.0
AF 2413-2	" x "	(-)	M	B	3+	L	ML	M	83	267	2.6	4.0	7.6
AF 2413-4	" x "	O	M	C	3	R	M	M	84	312	2.8	4.0	5.8
AF 2418-1	CS 79228-1 x AC 83064-6	M	M	W	4	L	L	M	92	325	2.5	3.2	4.0
AF 2423-2	AF 1811-6 x Century Russet	O	E	R	4	O	S	+	92	321	1.8	3.0	7.0
AF 2427-1	AF 1718-1 x AF 1811-6	M	E	R	4	OL	ML	M	98	226	2.3	5.0	5.6
AF 2432-1	AF 522-5 x AO 77224-3	(-)	ML	R	3+	OL	M	M	98	275	2.2	3.5	5.8
AF 2440-1	A 84180-8 x Nooksack	(-)	ML	R	3	OL	M	M	96	246	2.4	4.0	5.0
AF 2493-1	Somerset x AF 1846-2	O	L	C	3	O	M	M	87	261	2.1	4.0	5.0
AF 2494-2	Somerset x ND 860-2	O	L	W	3	R	M	M	106	291	1.6	3.0	3.0
AF 2494-3	" x "	O	ML	B	3	RO	M	M	91	278	2.3	3.0	3.0
AF 2511-1	AF 1612-25 x AF 1612-25	O	L	W	3	O	M	M	84	265	1.3	4.0	8.0
AF 2518-1	AF 186-2 x AF 84-4	O	L	C	3	O	S	M	106	224	2.0	5.0	6.0
AF 2375-1	MSG 274-3Y x AF 1845-6	(-)	L	W	3	R	M	M	82	245	3.9	4.0	8.0
AF 2375-4	" x "	O	L	W	3	L	S	M	106	233	2.2	3.0	7.0
AF 2378-2	AF 1437-1 x BO 818-2	O	M	W	3+	R	ML	M	78	369	2.7	5.0	8.0
AF 2386-1	SA 8211-6 x St. Johns	M	M	W	3	OL	L	M	82	206	2.9	4.0	8.0
AF 2386-2	" x "	M	M	W	3	O	M	M	91	258	1.3	4.0	5.8

Maine Breeding Table 1. Continued.

Code Name	Pedigree	Fertility		Maturity	Color	Appearance	Shape	Size	Set	Specific Gravity	Yield Cwt./A	% Weight Loss		Chip Color 50°F	Chip Color 10/38°F
		1/	2/									9/	11/		
AF 2386-5	" x "	+	L	W	3	R	M	75	230	4.4	5.0	6.6			
AF 2388-1	BO 818-2 x St. Johns	M	L	W	3	O	M	93	275	2.6	4.0	8.0			
AF 2388-2	" x "	+	M	W	4	R	M	81	291	3.3	6.0	6.4			
AF 2391-1	AF 1638-5 x Century Russet	M	M	C	3	L	ML	89	250	2.1	4.2	7.0			
AF 2393-1	Rosegold x Redsen	M	E	Red	3	RO	M	98	283	2.5	3.0	3.8			
AF 2393-3	" x "	O	E	Red	4	R	S	100	165	2.0	4.0	4.0			
AF 2393-5	" x "	+	E	Red	3	R	SM	87	255	2.2	4.0	6.0			
AF 2393-7	" x "	O	M	Red	3	R	SM	85	197	1.8	3.0	4.0			
AF 2393-9	" x "	-	E	Red	4	R	M	95	190	2.3	3.0	6.0			
AF 2393-10	" x "	(-)	M	Red	4	R	M	97	209	2.5	4.0	4.6			
AF 2407-1	AF 1753-16 x A 84180-8	(-)	M	R	3	L	L	92	255	1.8	4.0	7.0			
AF 2412-2	AF 1291-113 x AF 1811-6	O	E	R	4	O	M	88	237	2.1	3.2	7.0			
AF 2412-6	" x "	O	M	R	3+	OL	M	89	221	1.7	4.0	8.0			
AF 2414-2	AWN 86514-2 x AF 1811-6	O	E	LR	3	LR	L	96	287	2.6	4.0	7.0			
AF 2426-1	AF 1718-1 x Century Russet	(-)	L	CN	3	L	L	84	417	2.2	3.0	6.0			
AF 2431-1	AF 1156-14 x A 8469-5	+	M	R	4	L	M	103	194	2.0	4.0	6.0			
AF 2431-2	" x "	M	M	B	3	OL	M	102	230	3.2	7.0	9.0			
AF 2447-1	A 8469-5 x AC 83064-6	M	L	CB	3+	O	M	81	291	4.9	8.0	9.0			
AF 2483-2	AF 1725-29 x AF 1725-29	O	M	C	3	LR	M	81	302	1.5	5.0	5.6			
AF 2486-5	AF 1811-6 x AF 1811-6	O	L	R	3	L	L	95	196	1.4	5.0	8.0			
AF 2489-1	AF 1808-18 x AF 1808-18	+	M	R	3+	L	ML	92	216	3.9	6.0	8.0			
AF 2490-3	AF 1846-2 x ND 860-2	-	M	W	3	R	SM	94	277	1.8	3.0	4.0			
AF 2492-1	AF 303-5 x ND 860-2	-	L	W	3	OR	M	96	269	2.4	3.0	3.0			
AF 2492-2	" x "	+	M	W	3	R	M	98	313	2.7	4.0	3.0			
AF 2497-2	ND 860-2 x AC 83064-6	(-)	L	W	3	R	M	84	281	2.6	3.0	5.0			
AF 2498-1	MaineChip x AF 1846-2	+	M	W	3	R	M	88	365	3.3	5.0	7.4			
AF 2498-3	" x "	O	M	C	3	R	M	93	337	1.7	4.0	8.0			
AF 2498-6	" x "	-	M	W	4	R	M	88	285	2.1	3.0	5.4			

Maine Breeding Table 1. Continued.

Code Name	Pedigree	Fertility	Maturity	Color	Appearance	Shape	Size	Set	Specific Gravity	Yield	% Weight Loss	Chip Color 50°F	Chip Color 10/38°F
		1/	2/	3/	4/	5/	6/	7/	8/	9/	11/	12/	
AF 2499-1	MaineChip x ND 860-2	O	L	W	3	L	M	M	99	314	3.2	3.0	5.0
AF 2500-4	CS 7232-4 x AF 1845-6	(-)	M	W	4	R	M	M	79	265	1.5	4.0	5.0
AF 2500-5	" x "	-	E	W	3	R	ML	M	95	299	3.0	4.0	3.0
AF 2500-6	" x "	O	L	W	3	R	M	+	81	357	3.0	4.0	4.4
AF 2500-7	" x "	-	L	W	3	R	ML	M	82	340	2.9	3.0	7.0
AF 2502-2	AF 879-18 x ND 860-2	+	L	B	4	R	M	+	107	295	3.2	3.0	4.0
AF 2502-4	" x "	+	M	WC	3	O	M	M	99	301	2.4	3.0	3.0
AF 2502-6	" x "	+	M	WB	4	RO	M	M	101	243	2.7	3.0	4.0
AF 2502-8	" x "	M	L	W	4	RO	M	+	102	309	2.0	3.0	4.0
AF 2502-11	" x "	+	E	W	4	R	M	M	107	268	2.1	4.0	3.0
AF 2502-13	" x "	+	M	B	3	O	M	M	104	269	2.3	3.0	3.0
AF 2502-16	" x "	-	L	C	3+	R	M	+	100	396	2.6	3.0	3.6
AF 2508-2	AF 1668-16 x AF 1668-16	-	M	W	4	O	L	M	88	298	2.1	4.0	4.4
AF 2508-8	" x "	O	M	W	3	R	M	M	91	259	2.4	3.0	5.0
AF 2508-10	" x "	(-)	M	W	3	R	M	M	91	295	2.3	4.0	4.0
AF 2525-1	AF 811-8 x Yankee Chipper	O	L	W	4	R	L	-	80	285	2.1	4.0	7.0
ARSW99-4108-1	Atlantic x Wischip	M	L	Red	4	R	ML	M	89	278	3.6	5.0	9.0
ARSW99-4109-1	Atlantic x US-W 973	+	M	B	3	R	M	M	106	227	4.0	3.0	4.0
ARSW99-4112-2	Pike x Wis AG 231	+	M	W	3	R	S	+	100	257	2.3	3.0	4.0
ARSW99-4120-1	Superior x US-W 973	M	M	W	3	R	M	M	103	345	3.3	6.0	5.6
ARSW99-4122-3	Yukon Gold x Wis AG 231	M	E	C	4	R	SM	M	92	286	1.5	4.0	5.2
ARSW99-4122-5	" x "	O	L	C	5	R	M	M	103	335	1.8	5.0	6.0
ARSW99-4157-1	Kennebec x CEX 69-1	O	L	B	3	O	M	M	92	327	2.3	4.0	7.4

Maine Breeding Table 2. New 60-hill plots at Gartley Farm, Presque Isle, Maine, 2001.

Code Name	Pedigree	Fertility 1/	Maturity 2/	Color 3/	Appearance 4/	Shape 5/	Size 6/	Set 7/	Specific Gravity	Yield Cwt/A 8/	% Weight Loss 9/	Chip Color 10/ 50°F 11/	Chip Color 10/ 38°F 12/	Eye # 13/	Greening 14/
AF 2276-8	F3 (CS 79123-12 x AF 235-5	+	M	WB	3	OL	M	M	1.096	216	2.6	3.4	5.0	9.0	3.8
AF 2277-11	" x "	+	E	WB	2+	L	M	M	96	272	3.4	4.4	5.4	10.5	3.2
AF 2278-1	" x "	O	EM	R	3+	L	SM	M	87	188	3.1	3.4	4.8	11.0	2.3
AF 2280-5	F3 (AF 465-2 x CF 7508-1	O	ML	R	3	MS	SM	M	103	222	3.6	3.0	6.0	9.0	1.8
AF 2280-6	" x "	M	M	W	3	L	M	M	94	224	2.8	3.4	5.0	11.0	1.7
AF 2285-5	F2 (AF 465-2 x AF 1338-1	+	L	R	3	L	S	M	94	153	4.6	5.8	5.8	9.0	1.7
AF 2290-8	F2 (AF 303-5 x CS 7983-26	+	M	W	3-	O	M	M	84	166	3.6	4.0	7.0	9.5	1.8
AF 2290-16	" x "	M	M	W	3	O	M	M	77	165	3.8	5.6	7.0	11.0	2.8
AF 2291-10	F2 (SA 8211-6 x EB 8109-1	M	ML	W	3	RO	M	M	101	204	3.3	4.0	3.0	10.5	2.7
AF 2293-2	" x "	-	E	WB	3	R	SM	M	80	206	3.3	3.0	5.4	9.5	3.0
AF 2295-1	87 Tr 2210-1 x AC 83064-6	-	ML	R	3	L	M		82	162	5.6	3.8	5.0	9.0	0.3
AF 2301-3	AC 83064-6 x A 75188-3	O	E	W	3+	SM	M	M	87	121	4.4	3.0	4.2	10.5	3.5
AF 2303-2	AF 522-5 x AC 83064-6	O	L	R	3	OL	ML	M	91	232	2.5	6.6	7.2	7.0	1.3
AF 2305-1	AF 1643-10 x AC 83064-6	M	L	W	3	L	M	M	94	227	2.7	5.0	6.6	12.5	2.8
AF 2314-1	CS 79228-1 x AC 83064-6	M	E	R	3	L	M	M-	90	172	3.9	3.0	4.0	9.0	1.7
AF 2314-2	" x "	-	M	CB	3+	L	ML	M	90	216	3.7	3.4	7.0	8.5	3.2
AF 2321-3	AF 1437-1 x AK 209-81	O	E	W	4	R	M	M	85	280	2.6	3.0	7.0	9.5	1.5
AF 2321-4	" x "	O	M	W	3	O	M+	M	94	240	4.1	3.0	7.0	9.5	2.8
AF 2321-5	" x "	O	E	W	3+	R	M	M	83	201	3.2	4.0	8.0	10.0	1.8
AF 2321-6	" x "	O	E	W	3+	RO	M	M	84	182	3.6	3.0	4.4	8.0	2.7
AF 2322-1	AF 1437-1 x Katahdin	O	E	W	3+	R	SM	M-	78	202	3.1	3.0	5.0	7.0	1.3
AF 2322-2	" x "	O	M	W	3	R	M	M-	82	215	4.0	3.4	7.0	7.5	2.2
AF 2322-4	" x "	O	E	W	3	RO	SM	M	85	213	2.7	4.0	3.0	8.5	1.3

Maine Breeding Table 2. Continued.

Code Name	Pedigree	Fertility 1/ 1/	Maturity 2/ 2/	Color 3/ 3/	Appear- ance 4/ 4/	Shape 5/ 5/	Size 6/ 6/	Set 7/ 7/	Specific Gravity	Yield Cwt./A 8/ 8/	% Weight Loss 9/ 9/	Chip Color 10/ 50°F 11/ 11/	Chip Color 10/ 38°F 12/ 12/	Eye # 13/ 13/	Greening 14/ 14/
AF 2322-5	" x "	O	L	W	3	R	M	M	84	280	3.3	4.6	8.0	7.0	1.8
AF 2322-6	" x "	(-)	M	W	3	R	M	M	89	298	3.3	3.0	7.0	9.0	3.2
AF 2323-3	AF 1437-1 x St. Johns	O	M	W	3	OL	M	M-	85	160	2.8	3.0	6.2	7.5	1.3
AF 2323-4	" x "	O	E	W	3+	R	M	M	76	263	2.9	3.0	6.0	8.0	1.5
AF 2326-1	AF 1475-6 x Katahdin	-	L	W	3+	O	M+	M	101	194	4.0	3.0	7.0	9.5	1.5
AF 2329-1	AF 1758-7 x Katahdin	M	L	W	3	R	M	M	71	204	3.1	4.0	7.6	9.5	2.0
AF 2330-2	AF 1845-6 x St. Johns	-	L	WB	3	R	M	M-	90	202	4.6	3.0	6.0	8.5	2.0
AF 2333-1	St. Johns x AK 209-81	M	M	WB	3-	OL	ML	M	82	213	2.9	6.8	9.0	13.5	1.8
AF 2339-3	SC 8805-12 x Katahdin	O	M	W	3+	R	M	M	90	215	3.2	4.0	4.0	10.5	2.2
AF 2341-1	AF 1638-5 x AF 1845-6	-	L	W	3+	R	M	M	82	240	4.0	5.0	7.8	10.5	3.2
AF 2341-3	" x "	-	ML	W	2	R	M	M	83	193	3.5	3.0	4.8	8.5	4.0
AF 2349-3	EB 8109-1 x St. Johns	-	L	W	3	R	SM	M	107	240	4.6	4.0	5.0	8.5	2.2
AF 2351-2	Elba x AF 1845-6	M	M	W	3	R	S	M-	94	254	3.3	5.0	8.0	10.5	3.2
AF 2351-3	" x "	(-)	ML	W	3	R	M	M	104	238	2.4	4.0	5.4	9.0	2.8
AF 2351-4	" x "	O	ML	WB	3	R	SM	M	91	227	2.9	3.0	4.8	9.0	2.8
AF 2351-6	" x "	M	M	W	3	R	ML	M	101	205	2.6	3.4	5.0	11.0	1.5
AF 2351-7	" x "	(-)	L	WB	4	R	M	M	89	218	3.4	4.2	7.0	8.0	1.0
AF 2353-1	AF 1786-3 x 391139	O	L	W	4	R	M	M	83	235	3.9	3.0	5.0	10.0	3.7
AF 2360-2	MaineChip x St. Johns	O	L	W	3+	R	M+	M+	87	224	5.0	3.0	6.0	8.5	2.7
AF 2363-6	F2 AF 84-4 x AF 879-18	-	L	W	3+	R	M	M	92	206	3.4	4.2	5.2	8.5	4.7
AF 2363-9	" x "	O	L	W	3+	R	M	M	95	191	3.2	4.0	4.0	5.0	3.3
AF 2363-11	" x "	M	ML	W	3	R	MS	M	98	138	3.1	3.0	3.0	4.5	4.0
AF 2366-1	F2 AF 811-8 x AF 1022-1	M	M	W	3	RO	S	M	103	244	2.9	3.0	4.8	12.5	2.8
Kennebec	Avg.								89	221	3.5	3.6	4.9	9.6	3.9

Maine Breeding Table 3. Twenty hill observation plots, College Farm, Presque Isle, Maine, 2001.

Code Name	Pedigree	Maturity 2/ 3/	Color 3/	Appearance 4/	Shape 5/	Size 6/	Set 7/	Specific Gravity	Yield Cwt./A 8/	Chip Color 10/ 50°F 11/	Chip Color 10/ 38°F 12/
AF 2276-8	F3 CS 79123-12 x AF 235-5	M	W	2+	RO	SM	M	1.086	314	4.4	5.6
AF 2277-11	" " x "	E	WB	2+	L	M	M	76	364	5.8	5.0
AF 2278-1	" " x "	E	R	3	O	SM	M	76	320	3.6	6.2
AF 2280-5	F3 AF 465-2 x CF 7508-1	M	R	4	L	M	M	82	278	4.0	6.2
AF 2280-6	" " x "	ML	W	3	RO	M	M	84	440	6.8	6.0
AF 2285-5	F2 AF 465-2 x AF 1338-1	ML	R	3+	OL	SM	M+	78	374	6.2	6.0
AF 2290-8	F2 AF 303-5 x CS 7983-26	ML	W	3	RO	ML	M	74	494	7.4	8.0
AF 2290-16	" " x "	M	W	3+	L	M	M	68	285	6.0	8.0
AF 2291-10	F2 SA 8211-6 x EB 8109-1	ML	W	3	R	M	M	88	301	3.0	6.2
AF 2293-2	" " x "	E	W	3	R	M	M	76	341	3.0	6.6
AF 2295-1	87 Tr 2210-1 x AC 83064-6	ML	R	3	L	M	M	82	261	4.0	6.0
AF 2301-3	AC 83064-6 x A 75188-3	M	W	3	OL	M	M-	78	205	4.0	5.4
AF 2303-2	AF 522-5 x AC 83064-6	ML	R	3	OL	M	M	87	301	6.8	7.4
AF 2305-1	AF 1643-10 x AC 83064-6	ML	W	3+	OL	M	M	85	260	4.8	8.0
AF 2314-1	CS 79228-1 x AC 83064-6	M	R	3+	L	M	M	86	313	3.2	5.8
AF 2314-2	" " x "	M	WN	3	O	ML	M	83	212	4.0	8.0
AF 2321-3	AF 1437-1 x AK 209-81	E	W	3	R	SM	M	80	386	5.0	7.0
AF 2321-4	" " x "	E	WN	3	O	M	M	77	187	3.6	7.4
AF 2321-5	" " x "	M	W	3	R	ML	M	74	341	5.0	8.0
AF 2321-6	" " x "	E	W	3	R	M	M	80	363	3.0	6.0
AF 2322-1	AF 1437-1 x Katahdin	E	W	3+	R	M	M	73	314	3.0	6.6
AF 2322-2	" " x "	E	W	3	R	S	M	78	359	4.4	7.4
AF 2322-4	" " x "	E	W	3	R	SM	M	71	327	3.0	7.0

Maine Breeding Table 3. Continued.

Code Name	Pedigree	Maturity 2/	Color 3/	Appearance 4/	Shape 5/	Size 6/	Set 7/	Specific Gravity	Yield Cwt./A 8/	Chip Color 10/ 50°F 11/	Chip Color 10/ 38°F 12/
AF 2322-5	" x "	ML	W	3	R	M	M	81	380	5.4	7.4
AF 2322-6	" x "	ML	W	3	R	SM	M	78	324	4.8	8.0
AF 2323-3	AF 1437-1 x St. Johns	ML	W	3	RO	M	M	74	302	3.0	7.6
AF 2323-4	" x "	E	W	3	R	SM	M	73	304	3.0	7.6
AF 2326-1	AF 1475-16 x Katahdin	ML	W	3	O	M	M	84	303	4.0	7.0
AF 2329-1	AF 1758-7 x Katahdin	L	W	3	R	M	M	67	352	4.4	9.0
AF 2330-2	AF 1845-6 x St. Johns	ML	W	3+	R	M	M	74	413	5.4	8.4
AF 2333-1	St. Johns x AK 209-81	M	W	3	R	SM	M	81	279	7.0	9.0
AF 2339-3	SC 8805-12 x Katahdin	M	W	3	M	M	M	78	306	4.4	5.0
AF 2341-1	AF 1638-5 x AF 1845-6	L	W	2+	M	M	M	82	390	4.0	8.4
AF 2341-3	" x "	M	WN	2+	R	L	M-	80	275	4.0	7.0
AF 2349-3	EB 8109-1 x St. Johns	L	W	3	R	SM	M+	91	382	3.0	7.4
AF 2351-2	Elba x AF 1845-6	ML	W	3+	R	SM	M	86	357	4.6	8.0
AF 2351-3	" x "	ML	W	2+	R	M	M+	90	376	3.4	7.0
AF 2351-4	" x "	ML	W	3	R	SM	M	80	391	4.4	7.0
AF 2351-6	" x "	M	W	3	R	M	M	76	402	4.6	7.0
AF 2351-7	" x "	L	WN	3	R	M	M-	85	447	5.0	8.0
AF 2353-1	AF 1786-3 x 391139	L	W	2+	R	ML	M	83	430	3.0	4.0
AF 2360-2	MaineChip x St. Johns	L	W	3	R	L	M-	79	397	3.2	6.8
AF 2363-6	F2 AF 84-4 x AF 879-18	L	W	2	R	M	M	87	366	4.0	7.4
AF 2363-11	" x "	L	W	3	R	M	M	96	340	3.0	4.0
AF 2366-1	F2 AF 811-8 x AF 1022-1	ML	W	3	R	SM	M	89	404	3.0	6.8
Kennebec	Avg. (10)							79	310	4.2	5.6

Maine Breeding Table 4. Summary of early maturity yield test # 1, Gartley Farm, Presque Isle, Maine, 2001.

Code Name	Pedigree	Yield over 1 7/8" Cwt/A	% over 1 7/8"	Specific Gravity	Maturity 2/	Color 3/	Appear- ance 4/	Shape 5/	Size 6/	Set 7/	Chip Color 10/ 38°F 12/	Chip Color 10/ 38°F 12/
AF 1424-7	Somerset x CS 7232-4	198	96.5	1.095	E	W	3	R	S	-	3.0	4.0
AF 1470-6	CS 7589-8 x Portage	269	98.1	74	E	W	3	R	M	M	6.3	8.0
AF 1565-12	AF 303-5 x Sunrise	245	96.8	92	E	W	3	RO	S	M	3.0	6.3
AF 1569-2	Portage x Sunrise	254	94.6	86	M	B	3	RO	M	-	4.1	6.3
AF 1856-1	CF 80247-1 x EB 8109-1	269	98.4	95	E	W	4	R	ML	M	3.0	4.1
AF 2061-2	F3 CS 79123-12 x AF 235-5	224	87.4	91	E	R	3+	L	M	M	6.7	6.0
AF 2082-12	F2 SA 8211-6 x EB 8109-1	200	93.2	77	M	W	3	R	S	M	3.0	7.0
AF 2133-17	F2AF 522-5 x CS 79123-12	232	90.1	90	L	R	3	L	M	M	3.7	7.1
AF 2206-7	AF 186-2 x AF 84-4	269	97.2	110	M	W	3+	R	SM	M	3.0	5.1
AF 2206-9	" x "	259	95.4	102	E	W	2+	O	ML	M	3.0	4.0
AF 2207-4	AF 637-1 x AF 879-18	228	88.4	108	L	W	3-	RO	M	M	3.0	3.7
AF 2213-4	Atlantic x AF 1452-28	227	94.3	96	L	W	3+	R	M	M	3.0	3.6
AF 2222-4	SC 8805-12 x ND 860-2	234	89.1	94	M	W	3+	R	SM	M	3.5	4.0
AF 2222-5	" x "	285	97.2	98	ML	W	3	R	M	M	3.5	4.1
AF 2242-10	SA 8312-1 x CS 76123-36	211	90.4	102	E	B	2+	R	SM	M	3.4	7.8
AF 2262-1	W91-945a x Katahdin	251	93.7	90	M	W	2+	R	M	M	3.2	6.2
AF 2269-1	St. Johns x VW 8222-12	225	93.4	83	E	WN	3	RO	M	M	5.0	8.0
AF 2269-9	" x "	207	93.4	99	E	B	3	R	S	M	4.5	7.5
ARSW97-1200-1	Somerset x US-W 357	213	87.0	101	M	W	3+	R	S	+	3.0	4.0
ARSW97-4291-1	W 870 x adg (232045)	212	83.9	90	E	W	3	R	S	M	7.0	8.5
SA 9502-4	AF 637-1 x AF 875-9	194	96.7	83	E	W	3+	R	M	M	3.0	4.2
SC 9703-11	F2 SA 8211-6 x EB 8109-1	217	97.4	92	E	W	3	R	S	M	3.0	4.3
SC 9705-11	F2 SA 8211-6 x EB8109-1	169	93.9	82	M	W	4	R	M	M	3.5	5.3
Superior	X (96 - 56) x N 59.44	248	97.7	91	M	B	3	R	M	M	3.6	6.8

Maine Breeding Table 5. Summary of early maturity yield test # 2, Gartley Farm, Presque Isle, Maine, 2001.

Code Name	Pedigree	Yield over 1 7/8" Cwt/A	% over 1 7/8"	Specific Gravity	Maturity 2/	Color 3/	Appear- ance 4/	Shape 5/	Size 6/	Set 7/	Chip Color 10/ 38°F 12/	Chip Color 10/ 38°F 12/
AF 1938-3	Somerset x AF 1321-1	268	96.0	1.084	ML	W	4	RO	M	M	3.2	8.0
AF 2069-5	F3 CS 79123-12 x AF 235-5	295	97.0	79	ML	WN	3+	O	M	M	6.0	8.0
AF 2138-1	AK 7-71-7-74 x CF 7353-1	163	82.0	99	E	Pu	3	R	S	M	4.0	5.0
AF 2151-1	CF 7353-1 x 391139	299	96.3	90	M	Pu	3+	RO	M	M+	4.0	4.1
AF 2207-6	AF 637-1 x AF 879-18	241	91.7	94	M	W	4	R	SM	M+	4.0	5.5
AF 2211-9	Atlantic x MaineChip	226	95.3	99	L	W	3	R	S	M-	4.0	4.0
AF 2215-3	MaineChip x Atlantic	291	96.4	89	M	W	3	R	SM	M	3.5	5.0
ARSW95-6553-1	Atlantic x US-W7630-1	253	92.8	92	M	W	4	R	M	M	4.5	5.0
SA 9704-1	F2 SA 8211-6 x EB 8109-1	261	98.2	87	M	W	4	R	ML	M	4.5	5.0
SA 9704-3	" x "	232	95.9	86	M	W	3	RO	M	M	4.0	7.0
SA 9704-6	" x "	164	97.8	82	L	W	3	R	SM	M-	3.0	6.0
SA 9705-1	F2 SA 8211-6 x EB 8109-1	197	97.5	79	L	W	3	R	M	M-	4.5	7.3
SA 9705-6	" x "	199	92.9	80	E	W	3	RO	M	M	4.0	6.7
SA 9705-7	" x "	205	95.3	78	E	W	3	RO	M	M	4.0	5.8
SA 9705-10	" x "	212	95.2	86	L	W	3	O	SM	M	3.0	5.8
SA 9705-12	" x "	123	80.2	88	E	W	3	R	S	M	3.0	7.7
SA 9707-6	F2 SA 8211-6 x EB 8109-1	254	95.3	82	ML	W	4	R	M	M	4.0	5.8
SC 9704-8	" x "	171	96.0	85	L	W	3	R	S	M	3.5	6.7
SC 9705-7	" x "	170	86.9	90	E	W	3	O	S	M	3.0	5.1
SC 9801-2	SA 8312-1 x AF 332-11	179	85.7	92	M	WN	4	O	SM	M	4.2	7.8
VW 9309-9	AF 303-5 x CF 7608-19	306	94.6	79	L	W	3	RO	M	M	5.5	7.7
VW 9501-5	CS 7981-7 x B 7168-10	317	96.8	76	M	W	4	O	M	M	5.0	8.0
VW 9503-4	AF 303-5 x CS 78155-1	273	93.7	91	M	W	3	RO	S	M	3.5	4.8
Kennebec	B 127 x X (96-56)	282	97.5	80	L	W	4	O	L	M	3.9	6.4

Maine Breeding Table 6. Summary of early-medium maturity yield test, Gartley Farm, Presque Isle, Maine, 2001.

Code Name	Pedigree	Yield over 1 7/8" Cwt/A	% over 1 7/8"	Specific Gravity	Maturity 2/	Color 3/	Appear- ance 4/	Shape 5/	Size 6/	Set 7/	Chip Color 10/ 38°F 12/	Chip Color 10/ 38°F 12/
AF 2211-10	Atlantic x MaineChip	202	94.5	1.106	ML	W	3	R	S	M	3.0	5.8
AF 2215-1	MaineChip x Atlantic	186	96.1	105	L	W	3	R	S	M	3.0	4.0
AF 2215-4	" x "	217	96.6	96	ME	W	4	R	S	M	3.0	4.2
AF 2215-5	" x "	162	97.8	101	ML	W	2+	R	M	-	3.5	4.0
AF 2217-3	MaineChip x CS 7232-4	116	90.7	95	M	W	2+	R	S	M-	3.0	4.2
AF 2219-1	Somerset x AF 1424-7	191	95.6	85	M	W	3	R	L	-	3.5	4.0
AF 2220-1	AF 1452-28 x Atlantic	199	92.9	90	ML	W	3+	R	SM	M	3.0	4.5
AF 2220-3	" x "	157	86.3	91	EM	W	3	R	S	-	3.3	5.0
AF 2222-2	" x "	214	94.4	97	M	W	3+	R	S	M	3.5	3.0
AF 2260-5	SC 8805-12 x ND 860-2	225	97.4	78	ML	W	3	R	M	M	5.2	8.0
AF 2267-7	Elba x VW 8222-12	176	86.2	89	M	W	3	O	SM	M	3.3	6.8
AF 2267-8	AF 303-5 x VW 8222-12	231	96.6	80	ML	W	3	R	M	M	4.5	8.0
AF 2268-2	" x "	192	95.0	91	EM	W	3	RO	SM	M	3.0	5.8
AF 2269-8	Katahdin x 391046	180	93.6	83	EM	W	3	RO	SM	M	3.8	8.0
ARSW96-4662-2	St. Johns x VW 8222-12	211	83.0	84	ML	W	3	RO	SM	+	6.3	7.0
ARSW96-40006-1	W 870 x tbr PI 58331	207	91.8	90	EM	B	3	R	S	M	3.5	7.0
SA 9705-9	W 231 x Pimpernel	123	88.7	81	ML	W	3	R	S	M	3.0	4.5
SA 9706-2	F2 SA 8211-6 x EB 8109-1	64	51.9	95	E	B	2	R	S	-	3.0	4.7
SA 9708-1	" x "	93	72.3	89	M	W	3	R	S	M	3.8	7.2
SC 9704-11	F2 AF 910-2 x SA 8211-6	168	95.0	85	ML	W	3	R	SM	M	3.0	7.5
VW 9305-10	F2 SA 8211-6 x EB 8109-1	206	95.1	98	ML	B	3	R	M	M	4.0	5.1
VW 9703-11	CS 7981-7 x Delta Gold	150	92.3	85	M	W	3	R	SM	M	3.0	5.8
Michigan Purple Atlantic	F2 AF 303-5 x EB 8109-1	286	97.6	89	ML	Pu	4	R	M	M	5.2	7.5
	Wauseon x Lenape	257	97.2	107	ME	B	3+	R	L	M	3.5	5.0

Maine Breeding Table 7. Summary of medium maturity yield test, Gartley Farm, Presque Isle, Maine, 2001.

Code Name	Pedigree	Yield over 1 7/8" Cwt/A	% over 1 7/8"	Specific Gravity	Maturity 2/	Color 3/	Appear- ance 4/	Shape 5/	Size 6/	Set 7/	Chip Color 10/ 38°F 12/	Chip Color 10/ 38°F 12/
AF 1455-20	F3 AF 988-2	237	96.7	1.092	ML	W	3	RO	M	M	5.0	6.4
AF 2211-2	Atlantic x MaineChip	271	97.1	92	ML	W	3	R	M	M	4.0	4.3
AF 2211-4	" x "	250	95.4	93	L	B	3	R	M	M	5.5	4.8
AF 2211-6	" x "	250	97.3	102	M	B	3	R	ML	M	4.0	4.0
AF 2211-14	" x "	164	87.0	100	EM	W	3	R	S	M	3.0	3.8
AF 2220-2	AF 1452-28 x Atlantic	206	97.8	90	M	W	3	RO	M	M	3.0	3.0
AF 2230-2	CF 7353-1 x Katahdin	260	96.0	78	ML	Pu	3	R	SM	M	3.2	6.2
AF 2256-1	391137 x VW 8222-12	176	88.1	80	ML	W	2	R	S	-	4.0	4.8
AF 2260-7	Elba x VW 8222-12	345	98.5	77	L	WB	3	R	M	M	4.5	7.0
AF 2261-1	SC 8803-3 x Katahdin	223	93.1	86	ML	W	3	R	S	M	3.8	7.0
AF 2268-6	Katahdin x 391046	204	95.0	80	M	WB	2+	R	M	M	4.3	6.8
AF 2271-5	Somerset x VW 8222-12	180	93.3	86	M	W	3	O	M	M	4.1	6.0
ARSW96-4654-1	1584-C (10) (R3R4) x Norland	253	90.6	88	M	Pu	3	R	S	M	4.0	4.6
ARSW96-40022-5	Atlantic x US-W7630.1	272	92.7	98	M	W	3	R	S	M	3.5	4.5
ARSW97-4238-3	Katahdin x 303151	275	94.1	78	M	W	2+	R	M	M	7.8	7.9
SA 9708-4	F2 AF 910-2 x SA 8211-6	150	84.1	78	M	W	3	R	S	M	5.6	6.5
SC 8801-2	Abnaki x SA 8207-3	250	98.2	75	ML	W	3	O	M	M	7.0	7.7
SC 9706-7	F2 SA 8211-6 x EB 8109-1	163	92.9	76	L	B	3	R	SM	M	4.0	4.4
SC 9706-9	" x "	151	84.1	78	M	W	2	R	S	M	3.5	5.3
MSG 004-3		220	98.2	75	M	W	3	R	ML	M	3.5	7.0
MSF 099-3		230	95.3	87	M	WB	3	RO	M	M	3.5	4.0
Ware's Pride		277	93.5	71	M	Red	2	M	M	M	6.9	6.8
Yukon Gold	W 5279-4 x Norglearn	275	98.0	93	L	W	4	R	ML	M	4.7	5.8

Maine Breeding Table 8. Summary of medium-late maturity yield test, Gantley Farm, Presque Isle, Maine, 2001.

Code Name	Pedigree	Yield over 1 7/8" Cwt/A	% over 1 7/8"	Specific Gravity	Maturity 2/	Color 3/	Appear- ance 4/	Shape 5/	Size 6/	Set 7/	Chip Color 10/ 38°F 12/	Chip Color 10/ 38°F 12/
AF 1615-1	SA 8211-6 x Sunrise	271	96.7	1.080	ML	W	3	RO	M	M	4.3	8.0
AF 1763-2	CS 76123-36 x AF 686-3	249	95.5	74	M	W	3	R	S	M	4.6	8.0
AF 1764-3	CS 7958-1 x SA 8211-6	181	95.6	67	ML	W	3	R	M	M	3.5	7.4
AF 1775-2	AF 901-1 x EB 8109-1	266	98.4	79	L	W	3	RO	M	M	3.2	6.2
AF 1921-4	CS 76123-36 x Sunrise	262	94.7	85	M	W	3+	R	M	M	4.0	6.8
AF 2115-1	F2 Goldrus x Penobscot	268	96.9	77	ML	W	3	RO	M	M	3.5	6.7
AF 2206-2	AF 186-2 x AF 84-4	254	97.4	88	ML	W	3	R	M	M	3.5	5.7
AF 2210-5	Yankee Chipper x Sunrise	282	97.1	87	ML	W	2+	R	M	M	5.2	7.2
AF 2222-3	SC 8805-12 x ND 860-2	224	94.7	86	ML	W	3	R	S	M	4.0	5.0
AF 2259-7	Elba x EB 8109-1	217	96.8	77	L	W	3	R	M	M	5.8	8.5
ARSW97-4287-2	W 870 x Katahdin	194	96.0	83	M	W	3	R	SM	M	3.7	4.8
ARSW97-4290-1	Wishchip x W 1005	271	96.0	66	ML	Pu	3	R	M	M	4.7	8.5
ARSW97-4295-1	W 870 x W 1005	182	89.8	86	L	Pu	2	R	S	M	7.0	7.9
LB 9710-1	BO 718-3 x EB 8109-1	186	96.0	66	L	W	3	R	M	M	3.5	7.0
SC 9505-3	Mainestay x EB 8109-1	246	97.9	83	ML	W	3	R	M	M	4.3	7.3
SC 9706-1	F2 SA 8211-6 x EB 8109-1	181	96.7	81	ML	W	2	R	SM	M	3.0	6.0
VW 9704-28	F2 AF 303-5 x EB 8109-1	145	93.9	80	ML	B	3	O	S	-	4.0	5.5
VW 9704-36	" x "	163	98.8	65	L	W	2	R	M	M-	3.7	7.0
VW 9802-1	AF 303-5 x AF 1155-24	233	97.2	86	ML	W	3	R	SM	M	5.8	7.3
VW 9802-2	" x "	232	98.1	82	ML	W	3+	RO	M	M	4.0	6.0
Jacqueline Lee		165	72.2	85	M	W	3	RO	S	M	4.3	7.2
NDTX 4930-5W	ND 860-2 x A 7961-1	219	97.2	81	ML	W	3+	O	M	M	3.1	4.0
NDTX 85404-8W		262	95.6	74	ML	W	2+	R	SM	M-	3.0	4.5
Katahdin		262	97.7	74	M	W	4	R	M	M	4.0	7.0

Maine Breeding Table 9. Summary of late maturity yield test, Gartley Farm, Presque Isle, Maine, 2001.

Code Name	Pedigree	Yield over 1 7/8" Cwt/A	% over 1 7/8"	Specific Gravity	Maturity 2/	Color 3/	Appear- ance 4/	Shape 5/	Size 6/	Set 7/	Chip Color 10/ 38°F 12/	Chip Color 10/ 38°F 12/
AF 1758-7	AF 303-5 x CF 7608-19	310	97.7	1.068	L	B	3+	R	L	M	4.6	8.5
LB 9709-2	CF 7353-1 x 391139	233	95.8	75	L	Pu	2	RO	ML	M	4.6	7.0
LB 9710-4	BO 718-3 x EB 8109-1	212	97.9	76	L	B	3	R	L	M	5.0	7.0
Yukon Gold	W 5279-4 x Norgleam	291	98.4	90	L	W	3+	R	L	M	3.0	5.7
LB 9806-5	BO 818-2 x 391046	227	90.9	80	L	B	2	R	S	-	4.5	6.4
SC 9803-1	SA 8312-1 x AF 1155-24	281	98.9	86	L	WN	3+	R	L	M	5.5	7.0
Atlantic	Wauseon x Lenape	265	98.2	97	ML	B	3+	R	L	M	3.8	4.5
Katahdin	40568 x 24642	297	97.6	78	ML	W	3	R	L	M	4.7	6.5
Norwis	RD 289-18 x Monona	242	97.5	75	ML	WN		R	M	M	3.0	4.9
Ontario	Richter Jubel x 44537	248	95.4	71	ML	W	2	R	M	M	7.1	9.0

Maine Breeding Table 10. Summary of russet yield test, College Farm, Presque Isle, Maine, 2001.

Code Name	Pedigree	Yield over 1 7/8" Cwt/A	% over 1 7/8"	Specific Gravity	Maturity 2/ 4/	Color 3/ 4/	Appear- ance	Shape	Size	Set 7/ M+	Chip Color 10/ 38°F 12/ 38°F 12/	Chip Color 10/ 38°F 12/ 38°F 12/
AF 1753-16	CS 7981-7 x CF 7608-19	340	94.7	1.086	ML	R	3	L	L	-	5.5	7.2
AF 1808-18	F4 AF 1367-13	296	94.6	85	L	R	2	L	L	M	5.5	7.2
AF 1866-8	F2 AF 1166-4 x CS 79123-12 x AF 235-5	212	88.6	86	M	R	2+	O	M	-	4.0	6.5
AF 2061-2	F3 CS 79123-12 x AF 235-5	184	80.9	77	M	R	3+	L	L	M+	6.8	6.4
AF 2133-17	F2 AF 522-5 x CS 79123-12	238	86.6	84	L	R	3	L	L	-	4.5	7.2
AF 2199-6	A 84118-3 x AF 295-10	201	80.8	93	ML	R	4	L	SM	M	4.0	5.0
ATX 84706-2RU	A 7938-1 x COA 7906-5	268	96.1	88	L	R	2	OL	L	-	4.0	4.8
ATX 9202-3RU	A 8343-12 x A 84118-3	245	84.4	85	ML	R	3	L	M	M+	4.5	4.7
MN 15620		219	76.4	81	ML	Red	3+	L	ML	M+	4.0	4.5
TXNS 102	ND 9526-4RU x ND 9687-5RU	177	84.6	84	ML	R	3	L	SM	M	5.0	7.0
TXNS 112	" x "	191	84.0	81	M	R	3	OL	ML	M	5.8	5.7
TXNS 223	" x "	244	86.9	79	L	R	3+	O	L	M-	4.5	5.5
TXNS 278	" x "	238	85.6	86	M	R	3	L	ML	M	5.0	5.3
TXNS 296	" x "	246	88.3	85	ML	R	3	OL	MS	M+	5.3	6.2
TX 1385-12RU	Russet Nugget x CS 7802L-2	267	91.9	84	L	WN	2+	L	L	-	3.7	5.1
TX 1523-1 RU/Y	Krantz x Delta Gold	192	84.2	91	ML	W	3	O	M	M	5.5	4.7
Russet Burbank	Sport of Burbank	231	84.9	83	L	R	2+	L	M	M	3.9	5.8
Russet Norkotah	ND 9687-5 x ND 9526-4	216	89.6	84	ML	R	3	L	M	M	4.2	4.7
Shepody 15"	Bakeking x F 58050	289	92.4	85	ML	WN	3	L	L	M	4.0	6.3
Shepody 10"	" x "	242	88.7	89	ML	WN	3+	OL	ML	M+	4.8	6.6

Maine Breeding Table 11. Summary of disease tests conducted in 2001.

DISEASE	ENTRIES	REMARKS
1. Potato Leafroll Virus	41 + 4 checks	harvested for replanting
2. Verticillium Wilt	144 + 8 checks	16 entries had a rating of ≤ 2.5 ; 0=none, 10=dead
3. Late Blight		No infection observed
4. Acid Scab	155 + 5 checks	9 entries had ≤ 0.9 infection; 0=none, 5=severe
5. Common Scab	157 + 6 checks	10 entries ≤ 1.0 rating
6. Net Necrosis	157 + 5 checks	14 entries & 3 checks showed net necrosis symptoms tubers were harvested & stored at 50°F
7. Ring Rot	15 + 1 check	all showed good symptoms
8. Golden Nematode	85 + 1 check	14 entries (16.5%) were rated resistant
9. Rhizoctonia	22 + 4 named vars.	Results in Table 13
10. PVY	35 + Russet Burbank	23 w/ good symptoms not harvested 12 showed no symptoms others harvested for replanting 10 out of 16 entries inoculated in CY2000 had fair symptoms

Maine Breeding Table 12. Evaluation of selections for reactions to pathogens, pests, and physiological disorders, 2001.

Variety	Acid Scab		Common Scab		Hollow Heart		Vert. Wilt		Shatter	Black Spot	Golden Nema.	Leafroll		Eye Greening	Virus Y	TGA	Net Necrosis
	Rating	%	Rating	%	Amount	%	1/	5/	Bruise	6/	7/	Rating	%	#	7/	12/	4/
AF 303-5							2.0										
AF 1156-14												MS	25				
AF 1638-5												MS	29				
AF 1753-16	3.1	100	4.5	100	5/57	8.8	5.0										0
AF 1758-7							4.0										
AF 1763-2																	
AF 2133-17																	
AF 2138-1	2.6	80													MR		
AF 2151-1																	
AF 2171-3			4.0	100												4.2	
AF 2171-5			3.5	100												16.4	
AF 2171-38			1.3	100												6.4	
AF 2171-60			4.0	100													0
AF 2171-64			3.0	100			8.0										0
AF 2172-27			2.0	83													0
AF 2172-51			4.0	100													0
AF 2172-56			3.5	100													0
AF 2172-60			1.8	100													0
AF 2199-6	0.5	48			5/45	11.1			0.70	0.98							
AF 2206-2	3.0	100			0/42	0			0.68	0.68						17.3	
AF 2206-7	3.1	87			3/47	6.4			1.03	1.20						9.3	
AF 2206-9			3.0	100	0/42	0	9.5		0.85	1.28							0
AF 2207-4	3.6	100			16/45	35.6			0.43	0.50							0
AF 2207-6			3.5	100													0
AF 2210-3			4.5	100													3
AF 2210-5					0/59	0.0			0.95	0.88						7.5	

Maine Breeding Table 12. Continued.

Variety	Acid Scab		Common Scab		Hollow Heart		Vert.		Shatter		Black		Golden		Leafroll		Eye		Greening		Virus Y		TGA		Net Necrosis 4/
	Rating 2/	% 3/	Rating 2/	% 3/	Amount 4/	% 5/	Wilt 1/	Bruise 6/	Spot 6/	Nematode 7/	Rating 10/	% 11/	# 8/												
AF 2211-2	4.0	100			2/54	3.7	9.5	1.18	0.45																
AF 2211-4	2.5	71			5/57	8.8		1.33	1.13																
AF 2211-6	0.8	91			2/46	4.3		0.80	0.78																
AF 2211-9	1.5	100			0/49	0		0.25	0.65																
AF 2211-10	3.6	100																							
AF 2211-14	1.2	60			5/44	11.4		2.00	0.50																
AF 2213-4	1.3	89																							
AF 2215-1			3.5	100	0/46	0	8.5	0.25	0.60															0	
AF 2215-3			2.0	77	0/49	0		0.90	0.35															0	
AF 2215-4	1.0	80			1/59	1.7		0.35	0.40																
AF 2215-5					7/52	13.5		0.55	0.78																
AF 2217-3	1.6	88			1/40	2.5	9.5	0.48	0.30																
AF 2219-1	2.1	100			4/50	8.0		0.55	0.13																
AF 2220-1	2.5	100			8/58	13.8		1.20	0.43																
AF 2220-2			4.0	82	0/65	0	10.0	0.33	0.18													14.3		0	
AF 2220-3	2.1	85			3/39	7.7		0.28	0.20																
AF 2220-7	4.1	100					9.0																	0	
AF 2222-2			3.5	100	1/41	2.4	10.0	1.28	0.40																
AF 2222-3					1/54	1.9		0.55	0.70																
AF 2222-4	3.1	89			3/48	6.3		0.28	0.63													11.4			
AF 2222-5	1.3	67			2/51	3.9		0.30	0.65													9.6			
AF 2230-2					3/46	6.5		0.65	0.38																
AF 2242-10					2/40	5.0		0.25	0.95																
AF 2256-1					1/39	2.6		0.55	0.40																
AF 2259-7					1/45	2.2		0.73	0.98																
AF 2260-5					13/64	20.3		0.43	1.08														1.7		
AF 2260-7					12/58	20.7		0.38	0.45														5.6		

Maine Breeding Table 12. Continued.

Variety	Acid Scab		Common Scab		Hollow Heart		Vert.	Shatter		Black		Golden		Leafroll		Eye		Greening		Virus Y		TGA		Net Necrosis	
	Rating 2/	% 3/	Rating 2/	% 3/	Amount 4/	% 5/		Wilt 1/	Bruise 6/	Spot 6/	Nematode 7/	Rating 10/	% 11/	# 8/	9/	7/	12/	4/							
AF 2261-1					1/44	2.3		0.35	0.30					S	45										
AF 2262-1					7/52	13.5		0.13	0.48					S	72										
AF 2267-7					0/46	0		1.03	0.85																
AF 2267-8					5/54	9.3		0.23	0.55																
AF 2268-2					0/53	0.0		0.35	1.28					S	71										0
AF 2268-6			2.1	65	6/48	12.5		0.43	0.48					S	45										0
AF 2269-1			2.0	83	8/53	15.1	5.5	0.73	1.20																0
AF 2269-8					0/59	0		0.33	0.33																0
AF 2271-5					1/39	2.6		1.05	1.20																0
AF 2276-8			1.0	100			8.5					R					9.0		3.8				3.1		0
AF 2277-11			2.0	100			10.0					S					10.5		3.2				4.0		0
AF 2278-1			4.5	100			10.0					S					11.0		2.3				5.7		0
AF 2280-5			3.5	79			10.0					R					9.0		1.8				14.9		0
AF 2280-6			5.0	100			8.5					S					11.0		1.7				9.4		0
AF 2285-5			3.5	100			7.5					S					9.0		1.7				10.2		0
AF 2290-8			3.0	88			10.0					R					9.5		1.8				9.2		0
AF 2290-16			3.0	100			7.5					M					11.0		2.8				10.7		11
AF 2291-10			2.5	100			5.0					S					10.5		2.7				8.8		0
AF 2293-2			2.5	80			10.0					S					9.5		3.0				6.6		0
AF 2295-1			0	0			8.5					S					9.0		0.3				4.4		0
AF 2301-3			5.0	100			7.5					S					10.5		3.5				6.9		0
AF 2303-2			2.0	56			9.0					S					7.0		1.3				9.5		0
AF 2305-1			1.0	93			9.5					S					12.5		2.8				18.2		0
AF 2314-1			1.8	47			9.5					S					9.0		1.7				3.9		0
AF 2314-2			3.5	100			9.5					S					8.5		3.2						0
AF 2321-3			4.0	100			10.0					S					9.5		1.5				4.4		0
AF 2321-4			3.0	89			9.5					S					9.5		2.8				3.0		0
AF 2321-5			3.5	100			9.5					S					10.0		1.8				5.5		0

Maine Breeding Table 12. Continued.

Variety	Acid Scab		Common Scab		Hollow Heart		Vert.		Shatter		Black		Golden		Leafroll		Eye		Greening		Virus Y		TGA		Net Necrosis	
	Rating	%	Rating	%	Amount	%	Wilt	Bruise	Spot	Nematode	Rating	%	#	%	8/	9/	7/	12/	4/							
AF 2321-6			3.5	100			9.5			S					8.0	2.7		4.6						0		
AF 2322-1			4.5	100			10.0			S					7.0	1.3		7.1						0		
AF 2322-2			4.5	97			10.0			S					7.5	2.2		3.5						0		
AF 2322-4			3.0	100			10.0			S					8.5	1.3		5.5						0		
AF 2322-5			3.0	100			10.0			S					7.0	1.8		5.4						0		
AF 2322-6			3.5	96			9.5			S					9.0	3.2		9.8						0		
AF 2323-3			3.5	100			9.5			S					7.5	1.3		3.3						0		
AF 2323-4			4.0	100			10.0			S					8.0	1.5		5.0						0		
AF 2326-1			3.5	79			9.0			S					9.5	1.5		5.8						0		
AF 2329-1			3.5	67			6.0			S					9.5	2.0		5.5						0		
AF 2330-2			2.0	100			4.0			M					8.5	2.0		6.7						0		
AF 2333-1			3.0	100			9.0			R					13.5	1.8								0		
AF 2338-1			1.0	81			6.5			S														0		
AF 2339-3			4.5	100			5.0			S					10.5	2.2		11.7						0		
AF 2341-1			2.5	89			6.5			R					10.5	3.2		24.9						0		
AF 2341-3			4.0	100			6.5			R					8.5	4.0		4.6						0		
AF 2349-3			4.5	100			7.5			S					8.5	2.2		11.1						0		
AF 2351-2			2.5	100			7.5			R					10.5	3.2		4.8						0		
AF 2351-3			4.0	100			7.5			R					9.0	2.8		14.1						0		
AF 2351-4			5.0	100			5.0			S					9.0	2.8		12.0						0		
AF 2351-6			5.0	100			5.5			R					11.0	1.5		10.7						0		
AF 2351-7			3.5	100			3.5								8.0	1.0		3.7						0		
AF 2353-1			4.5	100			7.0			S					10.0	3.7		4.6						0		
AF 2360-2			3.0	100			4.5			S					8.5	2.7		8.1						0		
AF 2363-6			2.0	100			6.5			S					8.5	4.7		9.5						4		
AF 2363-9			4.0	100						S					5.0	3.5		33.5						0		
AF 2363-11			2.0	96			7.0			M					4.5	4.0		14.6						0		
AF 2366-1			4.0	96			9.0			S					12.5	2.8		12.8						0		

Maine Breeding Table 12. Continued.

Variety	Acid Scab Rating		Common Scab Rating		Hollow Heart		Vert.	Shatter		Black Spot	Golden Nematode		Leafroll		Eye #	Greening	Virus Y	TGA	Net Necrosis
	2/	3/	2/	3/	Amount	%		Wilt	Bruise		Rating	%	7/	10/						11/	8/	9/	7/	12/	4/
ARSW95-6553-1					4/46	8.7												5.4	
ARSW96-4654-1					0/41	0.0												6.0	
ARSW96-4662-2			3.5	96														7.6	0
ARSW96-40006-1																		10.3	
ARSW96-40022-5					0/43	0.0												5.6	
ARSW97-1200-1			1.8	100	0/41	0.0	10.0	2.00	1.15									21.4	0
ARSW97-4238-3					9/49	18.4		0.13	0.53		S		39						
ARSW97-4287-2					0/47	0.0		0.48	0.90		S		65						
ARSW97-4290-1					0/40	0.0		0.65	0.13										
ARSW97-4291-1					7/41	17.1		0.63	0.95		R		1.4					26.8	
ARSW97-4295-1					0/40	0.0		0.10	0.43									11.7	
ATX 9202-3RU																		22.4	
B1240-1			4.0	100															0
B1409-2			2.5	86															0
B1425-9			3.0	96															0
B0766-3			2.3	58															0
CO 86218-2			2.0	93															0
EB 8109-1							4.0										MR		
EB 8309-3																	S		
LB 9709-2	4.0	100																	
LB 9710-1	4.5	100																	
LB 9710-4	3.6	100																	
LB 9806-3			3.5	100															0
LB 9806-5			4.0	94															0

Maine Breeding Table 12. Continued.

Variety	Acid Scab		Common Scab		Hollow Heart		Vert.	Shatter	Black	Golden	Leafroll		Eye	Greening	Virus Y	TGA	Net Necrosi
	Rating	%	Rating	%	Amount	%					Rating	%					
	2/ 3/	3/	2/ 3/	3/	4/ 5/	1/ 5/	6/ 6/	6/ 6/	6/ 6/	7/ 7/	10/ 10/	11/ 11/	8/ 8/	9/ 9/	7/ 7/	12/ 12/	4/ 4/
LB 9902-2						6.0											
LB 9902-3						2.5											
LB 9904-1						6.0											
LB 9906-2						2.3											
LB 9906-4						4.0											
LB 9909-1						7.5											
LB 9909-2						5.5											
LB 9913-1						6.0											
LB 9914-1						5.0											
LB 9916-1						1.3											
LB 9917-1						3.5											
LB 9920-2						4.5											
LB 9921-1						3.0											
LB 9921-2						2.5											
LB 9923-1						4.0											
LB 9923-2						8.0											
Keuka Gold																	
NY 102			1.5	47													0
Eva			4.0	100							S	39			MS		0
NY 112			1.0	100							S	67			S		0
NY 115			3.5	100							S	38			R		0
SA 9502-4			1.0	48												4.0	0
SA 9901-1			2.0	100													0
SA 9901-3			1.3	64													0
SA 9901-5			2.0	77													0
SA 9901-8			2.0	100													0
SA 9901-9			2.0	59													0
SA 9901-10			4.0	100													8.1
SA 9902-3			3.5	93													0
SA 9902-4			2.0	82													0
SA 9902-5			2.5	72													0
SA 9902-8			2.5	85													0
SA 9902-8			2.0	81													0

Maine Breeding Table 12. Continued.

Variety	Acid Scab		Common Scab		Hollow Heart		Vert.		Shatter		Black		Golden		Leafroll		Eye Greening		Virus Y		TGA	Net Necrosis
	Rating	%	Rating	%	Amount	%	Wilt	Bruise	Spot	Nematode	Rating	%	#	9/	7/	12/	12/	4/				
SC 8803-3	0.9	45	0.8	82			6.0														0	
SC 9505-3																						
SC 9703-11	2.6	89																				
SC 9704-8	0.5	85																				
SC 9704-11	0.4	100																				
SC 9705-7	0.8	65																				
SC 9705-11	2.5	100																				
SC 9706-1	2.5	94																				
SC 9706-7	2.5	91																				
SC 9706-9	2.1	89																				
SC 9801-2			1.5	93																	0	
SC 9803-1			3.5	100																	0	
SC 9901-2	3.1	92																				
SC 9901-3	1.6	100																				
SC 9901-7	1.3	88																				
SC 9903-8	1.3	100																				
SC 9904-2	1.3	52																				
SC 9905-2	1.0	86																				
VW 8222-12	0.5	55	1.3	84			5.5														0	
VW 9305-10				17/68	25.0																	
VW 9309-9																						
VW 9501-5				1/46	2.2																	
VW 9703-11			1.5	74																	0	
VW 9704-28			4.0	100																	0	
VW 9704-36			3.5	91																	0	
VW 9802-1			4.0	95																	41	
VW 9802-2			5.0	100																	0	
VW 9901-6	2.5	97					3.0															

Maine Breeding Table 12. Continued.

Variety	Acid Scab		Common Scab		Hollow Heart		Vert.	Shatter	Black		Golden		Leafroll		Eye	Greening	Virus Y	TGA	Net Necrosis
	Rating	%	Rating	%	Amount	%			Spot	Nematode	Nematode	Rating	%	%	#				
	2/	3/		3/	4/	5/	1/	Bruise	6/	7/	7/	10/	11/	8/				12/	4/
VW 9901-7	4.0	100					1.3												
VW 9901-8	2.0	89					1.8												
VW 9901-9	2.5	89					2.0												
VW 9901-11	0.8	88					6.0												
VW 9901-15	2.5	100					3.5												
VW 9901-16	1.5	84					2.5												
VW 9901-17	1.9	83					4.0												
VW 9901-18	2.0	100					6.0												
VW 9902-3	0.9	67					2.0												
VW 9902-5	1.8	83					3.5												
VW 9903-2	2.5	81					5.0												
VW 9903-4	2.5	70					5.5												
VW 9904-1	1.1	78					5.0												
VW 9904-2	1.1	54					4.0												
VW 9904-3	1.8	85					3.0												
VW 9904-4	1.0	83					4.0												
VW 9904-5	1.4	97					5.5												
VW 9904-10	4.0	100					4.0												
VW 9904-11	2.5	93					4.5												
VW 9904-13	2.2	100					1.5												
VW 9904-14	1.0	97					2.5												
VW 9904-15	1.6	100					2.5												
W 1242		0		0								MS	29.0		S				0
W 1313												S	91.0		S				
Abnaki												R	1.1						
Atlantic					14/59	23.7	7.3	0.98	0.60										
Aquillon				1.8	63														0
Borden	2.6	100		2.5	100		9.0												0

Maine Breeding Table 12. Continued.

Variety	Acid Scab		Common Scab		Hollow Heart		Vert.		Shatter		Black		Golden		Leafroll		Eye		Greening		Virus Y		TGA		Net Necrosis	
	Rating	%	Rating	%	Amount	%	Wilt	%	Bruise	%	Spot	%	Nematode	%	Rating	%	#	%	9/	%	7/	%	12/	%	4/	%
Campbell 14							3.0																			
Chieftain			4.0	100											S	67					S				0	
Coaldale	1.0	100	3.0	95			7.5								S	71					S				5.0	
Dark Red																										
Norland																										
Envol			1.0	50																					0	
Gem Russet			3.0	63											S	96					S				8.6	
Green	4.0	97	5.0	100																					13.0	
Mountain																										
Halifax	1.5	81	2.0	65			6.5																		0	
Katahdin	3.0	84	3.5	98	4/52	7.7			0.50		0.78				S	77	9.6		3.9		R		12.8		0	
Kennebec					7/50	14.0	9.1		0.63		0.30												9.2			
Kildare	2.6	87	4.0	86			2.0				1.63															
Lemhi																										
Russet																										
Lenape																							18.8			
Mac Russet	2.6	83	2.0	91			4.0		0.60																0	
Norwis					3/42	7.1			0.13		0.28															
Ontario																										
Quaggy Joe																					R				0	
Riverina	3.0	100	3.5	100			3.5																			
Russet	2.5	100	3.5	96	9/49	18.4			0.40		0.70				S	56					S		2.3		3.0	
Burbank																										
Russet			2.0	81																					7.5	
Legend																										
Russet			2.5	93																					23.0	
Norkotah																					R					
Sebago																										
Shepody	4.1	100	5.0	100			8.5																8.5			
Snowden																										
Summerside	3.0	100	3.0	81			9.5																		14.0	

Maine Breeding Table 12. Continued.

Variety	Acid Scab		Common Scab		Hollow Heart		Vert.		Shatter		Black		Golden		Leafroll		Eye		Greening		Virus Y		TGA		Net	
	Rating	%	Rating	%	Amount	%	Wilt	%	Bruise	%	Spot	%	Nematode	%	Rating	%	#	%		%		%	12/	%	4/	%
Superior	1.6	77	1.4	56	1/43	2.3	10.0	0.30	0.48														7.8		0	
Umatilla	0.8	54	3.1	100			4.5																		0	
Russet																										
Wauseon	1.4	83	2.0	93																					1.4	
Yukon Gold			4.0	88																					47.1	

Maine Breeding Table 13. Reactions of resistant selections and controls to rhizoctonia inoculation: yields and rating.

Selection	Inoc.	Weights (lbs.)			Numbers			Ratings ²
		Total	% <1-7/8"	% culls	Total	% <1-7/8"	% culls	
AF 303-5	I	9.6	12.3	0.0	34.5	33.2	0.0	1.3
AF 875-15	I	7.5	12.0	10.0	29.0	31.8	9.1	2.7
AF 875-15	U	10.9	9.9	1.6	41.0	24.6	1.8	2.7
AF 1285-1	I	8.8	17.8	4.4	32.7	34.4	3.9	2.0
AF 1285-1	U	10.9	22.9	0.0	42.7	40.1	0.0	1.0
AF 1438-1	I	10.9	13.7	11.0	41.3	31.1	7.1	3.3
AF 1438-1	U	12.6	16.2	9.1	56.0	34.7	6.8	2.0
AF 303-5	U	13.6	9.0	0.0	49.0	24.6	0.0	1.0
AF 1455-20	I	10.1	7.8	0.0	31.7	26.2	0.0	3.3
AF 1455-20	U	11.0	7.6	0.8	39.3	22.6	0.9	0.0
AF 1470-6	I	8.7	6.0	16.0	26.7	23.6	13.3	3.0
AF 1470-6	U	11.5	2.1	10.7	29.7	8.0	6.4	2.0
AF 1552-5	I	7.6	18.7	3.1	26.7	39.3	3.6	2.0
AF 1552-5	U	8.9	13.8	2.4	29.0	36.9	2.5	0.0
AF 1559-1	I	10.9	6.3	0.9	36.3	17.2	0.9	3.3
AF 1559-1	U	16.1	9.3	2.5	57.7	20.9	2.3	0.0
AF 1615-1	I	14.6	9.2	4.8	42.7	28.6	3.2	2.0
AF 1615-1	U	11.9	13.8	4.3	44.3	32.5	3.0	2.7
AF 1753-16	I	10.6	10.0	38.6	31.0	23.4	28.3	1.3
AF 1753-16	U	11.3	13.8	18.9	37.0	14.7	30.9	1.7
AF 1758-7	I	8.6	16.2	2.9	39.3	36.3	2.4	3.7
AF 1758-7	U	10.5	11.7	0.0	42.0	31.1	0.0	0.7
AF 1763-2	I	9.2	12.8	6.0	38.7	29.8	3.6	2.0
AF 1763-2	U	9.0	11.4	2.6	44.0	23.5	2.4	0.3
AF 1764-3	I	8.3	10.1	4.4	30.7	26.1	3.4	1.3
AF 1764-3	U	10.9	6.0	3.9	32.0	22.7	3.0	0.7
AF 1775-2	I	9.2	6.9	8.6	27.7	23.8	6.7	3.3
AF 1775-2	U	11.1	6.6	1.0	38.3	23.1	0.7	2.3
AF 1856-1	I	10.8	8.1	5.3	33.3	27.3	2.1	2.3
AF 1856-1	U	13.1	8.4	1.7	29.3	7.7	1.2	0.3
AF 1866-8	I	9.2	15.1	7.6	38.0	31.6	7.0	1.7
AF 1866-8	U	12.7	13.7	10.0	40.0	29.4	6.3	0.7
AF 1921-4	I	14.2	7.5	0.3	48.7	23.1	0.8	2.3
AF 1921-4	U	14.7	10.1	5.2	52.0	27.2	2.6	0.0

Maine Breeding Table 13. Continued.

Selection	Inoc.	Weights (lbs.)		Numbers		Ratings ²
		Total	% <1-7/8"	Total	% culls	
AF 1938-3	I	9.1	11.8	36.3	28.2	2.0
AF 1938-3	U	11.9	14.4	47.3	35.4	2.0
AF 2069-5	I	11.5	15.9	36.3	39.2	2.3
AF 2069-5	U	14.6	10.2	48.3	26.0	0.3
CF 7353-1	I	12.0	6.1	35.7	19.7	0.3
CF 7353-1	U	12.0	7.0	37.0	21.1	0.3
CF 7508-1	I	7.7	13.3	27.7	33.7	2.7
CF 7508-1	U	11.8	17.7	39.3	37.7	2.0
SC 8801-2	I	9.7	8.4	32.0	22.0	4.3
SC 8801-2	U	9.5	8.3	30.3	21.1	3.0
Norland	I	8.3	8.1	29.7	9.9	1.3
Norland	U	6.9	34.4	27.3	48.4	0.0
Superior	I	12.3	9.8	45.7	25.9	3.7
Superior	U	15.8	10.2	56.7	25.9	2.3
R. Burbank	I	10.8	23.9	52.7	15.1	4.7
R. Burbank	U	12.5	21.1	61.7	43.3	1.0
Ware'sPride	I	12.8	17.8	61.7	41.5	1.0
Ware'sPride	U	12.0	14.8	54.3	34.2	0.0
Total	I	10.1	11.8	36.4	29.6	2.4
Total	U	11.8	12.5	42.5	28.2	1.1

¹ I = inoculated plot; U = uninoculated.² Visual ratings of harvested and washed tubers. Percentage of tuber surface with sclerotia; 0 = none, 10 = total coverage.

Inoculum : ground peelings added into deionized water.

Freshly cut seedpieces were dipped into this inoculum just prior to planting.

Maine Breeding Table 14. Percentage of purple streak in unhilled test plots.¹

Variety	% Purple ²	% sunburn	% purple in sunburned	% purple in non-sunburned
AF1470-6	2.6	38.1+	6.9	0.0
AF1569-2	0.0	21.2	0.0	0.0
AF1569-7	11.1+	26.9	19.6+	8.0+
AF1921-4	0.0	31.4	0.0	0.0
AF2199-6	0.0	15.7	0.0	0.0
AF2210-5	0.0	21.5	0.0	0.0
AF2222-2	0.0	30.0	0.0	0.0
AF2222-3	5.1	33.8	12.1	1.6
AF2222-4	0.0	36.9	0.0	0.0
AF2222-5	9.0+	29.1	30.9+	0.0
CF77107-5	0.0	13.3	0.0	0.0
CS7827-11	0.6	34.8	1.6	0.0
SC8801-2	3.5	25.0	5.6	2.8
SC9505-3	0.0	28.9	0.0	0.0
VW9010-2	0.9	16.6	2.6	0.5
Mainestay	1.4	13.9	6.9	0.6
TX1385-12RU	3.7	37.0+	10.0	0.0

¹ Average of three replications of 10-hill plots; all tubers cut.

² Values followed by a "+" are significantly higher, and those followed by a "-" are significantly lower than Mainestay (p=0.10).

Maine Breeding Table 15. Comparison of purple streak in hilled and unhilled plots.¹

Variety	% Purple ²	% sunburn	% purple in sunburned	% purple in non-sunburned
Unhilled				
Coastal Chip	1.2	21.2	0.0	1.5
Irish Cobbler	3.5	44.8	5.2	2.1
Mainestay	7.9	27.5	28.6	0.0
Portage	25.4	37.3	62.6	3.3
Quaggy Joe	0.5	30.2	1.6	0.0
Sunrise	17.3	47.0	36.8	0.0
Hilled				
Coastal Chip	0.0	6.8	0.0	0.0
Irish Cobbler	2.8	5.9	26.7	1.3
Mainestay	0.0	1.9	0.0	0.0
Portage	6.3	12.5	35.7	2.0
Quaggy Joe	0.5	5.6	9.1	0.0
Sunrise	2.9	18.1	8.0	1.8

¹ Averages of three replications of 10-hill plots; all tubers cut.

Maine Breeding Table 16. Potato chip test, College Farm, Presque Isle, Maine 2001.

Variety	December				February				April				55 F	50 F	55 F	Avg.
	38 F	41 F	45 F	50 F	55 F	38 F	41 F	45 F	50 F	55 F	38 F	41 F				
AF 1424-7	3.3	5.5	3.7	3.7	4.0	3.3	5.3	3.3	3.0	3.5	5.4	5.9	4.0	3.1	3.3	4.0
AF 1856-1	5.5	8.0	4.9	4.3	3.5	5.5	8.0	5.7	3.5	3.3	5.4	7.7	4.9	3.0	3.3	5.1
AF 2206-2	6.9	7.9	4.6	3.5	3.3	5.9	8.3	6.0	3.3	3.3	6.9	9.0	6.1	3.7	3.5	5.4
AF 2206-7	3.3	5.3	3.7	3.7	3.3	3.9	5.9	4.0	3.7	3.3	5.4	6.9	4.3	4.0	3.6	4.3
AF 2206-9	3.9	5.7	3.3	3.3	4.0	4.7	5.7	4.3	3.8	3.0	5.3	6.7	5.0	3.0	3.0	4.3
AF 2207-4	4.3	6.0	3.5	3.0	3.3	4.8	6.8	3.7	3.0	3.0	5.4	7.0	4.2	3.0	3.3	4.3
AF 2211-2	3.7	7.3	3.1	3.3	3.3	3.7	7.3	4.3	3.0	3.4	5.2	7.3	5.0	3.1	3.7	4.4
AF 2211-4	6.1	8.5	5.7	5.0	5.3	6.8	7.7	5.7	4.7	4.1	5.9	8.0	6.7	4.0	3.3	5.8
AF 2211-6	4.1	5.7	3.7	3.7	3.5	3.9	5.1	4.3	3.7	3.3	4.3	5.5	4.0	3.7	3.7	4.1
AF 2211-9	4.5	7.9	3.9	3.0	3.0	5.7	7.3	4.5	3.0	3.0	5.5	7.6	5.1	3.0	3.0	4.7
AF 2211-10	3.8	7.1	3.9	3.0	3.3	6.2	7.3	4.2	3.2	3.3	6.5	8.0	6.0	3.2	3.0	4.8
AF 2211-14	3.7	5.0	3.7	3.7	3.5	3.5	5.5	3.3	3.3	3.0	5.0	6.3	4.0	3.0	3.7	4.0
AF 2213-4	3.9	7.4	3.7	3.7	3.3	4.3	7.3	4.7	3.3	3.3	5.6	7.6	5.5	3.7	4.2	4.8
AF 2215-1	5.9	7.0	4.1	3.7	3.5	6.0	6.9	4.0	3.7	3.0	5.9	6.9	5.0	3.1	3.0	4.8
AF 2215-3	4.1	8.0	4.7	3.7	3.3	5.2	8.0	6.0	3.2	3.3	6.4	8.3	6.1	3.7	3.2	5.1
AF 2215-4	3.9	7.3	4.7	4.0	3.7	5.3	7.4	3.9	3.3	3.0	5.1	8.0	4.0	3.5	3.3	4.7
AF 2215-5	4.1	7.5	4.1	4.4	3.3	4.9	6.7	4.7	3.7	4.0	5.0	7.5	5.0	3.7	3.3	4.8
AF 2217-3	3.6	6.7	3.0	3.0	3.0	4.1	6.3	3.7	3.3	3.0	4.6	5.0	4.0	3.0	3.0	4.0
AF 2220-1	4.7	7.5	5.3	4.4	3.3	6.6	7.3	5.3	3.6	3.7	6.6	7.3	5.6	3.9	3.3	4.9
AF 2220-2	3.7	7.4	3.3	3.0	3.3	4.9	7.6	3.9	3.0	3.0	4.5	7.7	4.9	3.0	3.3	4.1
AF 2222-2	3.0	5.2	3.1	3.3	3.7	3.3	4.9	3.3	3.3	3.0	4.3	5.7	4.2	3.0	3.4	4.5
AF 2222-3	6.0	8.3	4.8	4.5	4.1	7.3	7.3	5.2	4.0	4.2	7.3	7.9	5.5	4.3	3.9	5.2
AF 2222-4	3.7	6.5	3.3	3.7	3.3	5.6	6.1	3.7	3.4	3.0	6.0	7.0	4.4	3.0	3.3	4.3
AF 2222-5	3.7	6.1	3.5	3.3	4.0	4.5	5.2	4.0	3.6	3.5	5.9	6.7	5.0	3.5	3.3	5.3
AF 2242-10	7.7	8.3	7.0	5.5	4.9	8.0	9.0	7.0	4.9	5.1	8.0	8.7	6.7	4.3	4.1	6.0
AF 2256-1	5.1	7.3	4.3	4.0	4.0	5.3	7.0	4.8	4.0	4.0	6.4	6.8	4.7	4.0	4.0	5.3
AF 2268-2	5.5	7.7	6.9	4.3	4.5	6.5	8.0	6.5	3.7	4.1	6.3	8.7	7.0	4.8	3.1	5.7
AF 2353-1	5.3	7.5	4.6	4.0	4.0	5.3	7.8	5.0	4.0	4.0	6.0	7.0	4.7	4.1	4.0	5.4
AF 2363-9	6.7	8.1	6.9	4.7	4.1	7.8	8.0	6.0	4.3	3.7	7.7	8.5	5.9	4.2	4.3	5.7
NDTX85404-8W	5.8	7.9	4.6	4.5	4.1	5.5	7.0	5.3	3.6	3.7	6.6	7.1	5.7	3.5	3.0	5.3
ARSW9640006-1	7.1	9.0	6.5	4.3	4.5	6.5	8.7	6.9	5.1	3.8	6.5	9.0	6.9	4.6	3.8	6.2
ARSW97-1200-1	3.3	5.5	3.3	3.3	3.3	3.7	5.1	3.7	3.3	3.3	5.2	6.3	3.8	3.1	3.0	3.9
ARSW974287-2	6.7	8.3	4.9	4.4	4.1	6.7	8.0	5.5	3.3	3.8	5.7	7.5	4.9	3.3	3.3	5.4
CS 7232-4	3.7	5.1	3.3	3.5	3.7	3.1	5.7	3.7	3.0	3.0	4.3	6.2	4.7	3.5	3.0	4.0
MSF 099-3	5.1	6.3	4.9	4.0	4.0	4.3	7.1	4.2	3.0	3.7	5.3	6.3	4.1	3.7	3.7	4.7
ND 860-2	4.5	6.3	4.1	3.7	3.7	3.7	4.7	4.3	3.7	4.1	5.7	4.7	4.7	3.7	3.5	4.4
SA 9502-4	4.0	6.7	3.5	3.1	3.0	6.2	7.0	4.0	3.1	3.5	6.3	6.9	5.1	4.0	3.3	4.7
VW 9503-4	6.7	8.2	4.7	3.5	3.8	6.2	8.0	5.5	3.3	3.7	5.9	7.9	5.7	3.9	3.9	5.4
Atlantic	5.1	8.1	4.3	3.7	4.5	5.3	7.9	5.1	3.7	3.4	6.1	8.1	5.5	4.1	3.5	5.2
MaineChip	3.8	6.2	3.3	3.3	3.0	3.9	6.7	3.7	3.3	3.0	5.6	5.7	4.3	3.1	3.0	4.1
Monona	3.6	7.3	4.1	3.9	3.0	5.6	6.7	4.7	3.0	3.0	4.5	6.3	4.0	3.0	3.3	4.4
Snowden	4.7	8.0	5.2	3.8	3.0	3.3	7.2	4.1	3.0	3.0	4.8	7.3	4.1	3.0	3.5	4.5
Somerset	4.3	7.2	4.1	4.2	3.3	4.1	6.2	4.1	4.0	3.7	5.4	6.1	4.0	3.1	3.2	4.5

Maine Breeding Table 17. French fry ratings for 2001 grown selections.¹

Selection	Color	Flavor	Texture	Mean	Comments ²
AF 1552-5	5.2	5.5	5.5	5.4	Inconsistent; crispy
AF 1718-1	5.5	4.7	4.7	4.9	Dull; pasty, greasy
AF 1753-16	6.0	5.3	5.7	5.7	Inconsistent; crispy
AF 1808-18	6.2	5.3	5.8	5.8	Good; crispy, pasty
AF 1866-8	7.0	6.2	6.0	6.4	Good; crispy, mealy, pasty
AF 2061-2	3.7	3.5	6.3	4.5	Inconsistent; greasy
AF 2133-17	6.5	6.8	5.7	6.3	Inconsistent; mealy, crispy
AF 2199-6	7.5	7.0	6.3	6.9	Good, inconsistent; crispy
AF 2272-1	8.2	7.2	5.2	6.8	Good; crispy, pasty
AF 2277-11	6.5	5.7	5.7	5.9	Inconsistent; pasty
AF 2278-1	7.3	5.3	5.5	6.1	Good, consistent; mealy
AF 2280-5	6.7	6.7	6.0	6.4	Inconsistent; crispy, pasty
AF 2280-6	5.5	5.2	6.0	5.6	Inconsistent, blotchy; soggy
AF 2285-5	6.2	4.3	5.2	5.2	Incon, blotchy; pasty
AF 2287-8	6.7	5.2	5.3	5.7	Good; crispy, chewy
AF 2295-1	6.8	5.5	5.8	6.1	Incon; incon, pasty, soggy
AF 2301-3	6.7	4.3	6.0	5.7	Good; greasy, pasty
AF 2303-2	3.7	4.3	4.8	4.3	Too dark incon; pasty
AF 2305-1	5.8	6.2	5.7	5.9	Incon, blotchy; crispy, mealy
AF 2305-8	5.0	5.2	5.5	5.2	Inconsistent; pasty, mealy
AF 2308-1	6.5	4.0	5.5	5.3	Inconsistent; greasy, mealy
AF 2308-2	6.3	5.7	6.3	6.1	Consistent, blotchy; pasty
AF 2310-2	6.8	5.3	6.0	6.1	Good; pasty
AF 2314-1	6.8	5.3	5.7	5.9	Good; mealy, greasy
AF 2314-2	5.7	4.5	6.0	5.4	Incon. blotchy; incon, soggy
AF 2327-3	4.7	4.7	5.3	4.9	Incon, blotchy; soggy
AP1	2.2	2.3	1.8	2.1	Too dark; soggy, greasy
MN 15620	6.3	5.3	5.2	5.6	Consis, yellow; pasty, mealy
BelRus	6.2	6.0	5.3	5.8	Inconsistent; crispy, mealy
Russet Burbank	5.2	5.0	5.2	6.1	Inconsistent; greasy, pasty
Shepody	6.7	5.3	5.3	5.6	Inconsistent; greasy, pasty
ATX 9202-3RU	5.8	5.5	5.3	5.1	Inconsistent; crispy, pasty
Jacqueline Lee	6.7	5.3	6.3	5.8	Inconsistent, blotchy; mealy

1/ Scale 0-9 where 9 is best. Ratings by Bart Bradbury, McCain Foods, Easton; Dan Ronis, McCain Foods, Florenceville, Canada; Randy Smith, Aroostook Research Farm.

2/ First comment refers to color; second to texture.

Maine Breeding Table 18. Summary of acceptance ratings for baked products of 2000-grown potato selections and standards¹.

Selection	Acceptance			
	Color	Flavor	Texture	Overall ²
Compared to Superior:				
AF 1437-1	6.6	5.8	6.1	5.9
AF 1569-2	6.2	5.8	5.6	5.8
AF 1668-60	6.5	5.9	5.6	5.8
AF 1763-2	6.4	6.4	6.0	6.3
Superior	6.7	6.3	6.2	6.4
Compared to Katahdin:				
AF 2047-2	7.2	6.5	7.0	6.8
AF 2135-1	7.0	6.9	6.7	7.0
ARSW95-6498-5	7.2	5.9	5.8	5.9
Katahdin	7.3	6.9	7.1	6.9
Compared to Russet Burbank:				
AF 1753-16	7.5	7.0	7.2	7.4
AF 1808-18	7.1	6.8	6.8	6.8
Russet Burbank	6.6	6.0	6.5	6.3

¹ Rating scale: 1 = dislike very much to 7 = like very much.

² Overall ratings were made by the panelists independent of other ratings and are not averages of the other three categories.

Maine Breeding Table 19. Storage tests of selections grown in 2001.¹

Selection	% Moderate and severe pressure bruise	Pressure bruise index
AF 1753-16	17.500 ***	1.030 ***
AF 1758-7	6.917	0.472
AF 1763-2	6.850	0.561
AF 1764-3	2.100	0.165
AF 1775-2	7.083	0.645
AF 1856-1	0.817	0.107
AF 1921-4	2.200	0.222
AF 1938-3	3.500	0.263
AF 2133-17	1.883	0.200
Katahdin	1.367	0.184
Russet Burbank	2.650	0.173
Superior	4.567	0.291

1/ Fifty pound samples stored in mesh bags at six locations in a bin of potatoes.
Storage temperature 3.3°C.

2/ Pressure bruise index calculated by [% very slight + (2 x % slight) + (3 x % moderate) + (4 x % severe)]/100.

Very slight = < 5/8" diameter; slight = 5/8" to 1"; moderate = 1" to 1-1/2"; severe = > 1-1/2".

*** Statistically different from all three checks.

MICHIGAN

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INTRODUCTION

Each year we conduct a series of variety trials to assess advanced potato selections from the Michigan State University and other potato breeding programs. The objectives of the evaluations are to identify superior varieties for fresh market or for processing and to develop recommendations for the growing of those varieties. The varieties were compared in groups according to the tuber type and skin color and to the advancement in selection. Each season, total and marketable yields, specific gravity, tuber appearance, incidence of external and internal defects, chip color (from field, 42°F and 50°F storage), as well as susceptibilities to late blight (foliar and tuber), common scab, *Fusarium* dry rot, *Erwinia* soft rot and blackspot bruising are determined.

PROCEDURE

Ten field experiments were conducted at the Montcalm Research Farm in Entrican, MI. They were planted as randomized complete block designs with four replications. The plots were 23 feet long and spacing between plants was 12 inches. Inter-row spacing was 34 inches. Supplemental irrigation was applied as needed. This year the fields were fumigated in the fall prior to the field season.

The round white tuber types were divided into chip-processors and tablestock and were harvested at two dates (Date-of-Harvest Trial: Early and Late). The other field experiments were the Long White and Russet, North Central Regional, Yellow Flesh and European, Heritage, Adaptation, and Preliminary Trials. In each of these trials, the yield was graded into four size classes, incidence of external and internal defects in > 3.25 in. diameter or 10 oz. potatoes were recorded, and samples for specific gravity, chipping, disease tests, bruising, and cooking tests were taken. Chip quality was assessed on 25-tuber samples, taking two slices from each tuber. Chips were fried at 365°F. The color was measured visually with the SFA 1-5 color chart. Tuber samples were also stored at 42°F and 50°F for chip-processing out of storage in January and March.

RESULTS

A. Round White Varieties: Chip-processors (Tables 1 and 2)

There were 14 entries that were compared at two harvest dates. Atlantic, Snowden and Pike were used as checks. The plot yields were average in the early harvest (98 days), and most lines increased approximately 100 cwt/a in yield for the second

harvest date (144 days). Tuber specific gravity readings were significantly below average for 2001; for example, Atlantic and Snowden had specific gravity readings of 1.081 and 1.076, respectively, in the late harvest. In the early harvest trial, Atlantic, MSH095-4, NY120, MSH067-3, and MSH098-2 had the highest yields of the 14 entries. At the later harvest, the same lines were again among the top yielding lines along with MSG227-2 and Liberator (MSA091-1). However, MSF099-3, W1386, and NY120 were the top yielding lines in the on-farm processing trials. MSA091-1 and MSG227-2 continue to be very promising selections that have scab resistance along with chip-processing ability. Liberator (MSA091-1) was released in 2001 and MSG227-2 is being considered for release after the 2002 season. Chip-processing quality was high among all the entries in the out-of-the-field samples. In 2001 incidence of internal defects were similar; Atlantic had a higher frequency of hollow heart at the late harvest, and we also saw a high frequency of necrosis (noted as IBS) in Pike.

Variety Characteristics

LIBERATOR (MSA091-1) - a MSU selection for chip-processing with strong scab resistance. Yield and specific gravity over the past five years were comparable to Snowden. It has performed well in other states (Nebraska, Pennsylvania and California). It was in the national SFA and the North Central regional trials. It is also in the CHIPS2001 program. It was named Liberator and released in 2001.

MSF099-3 – a MSU chip-processing selection. It has high specific gravity, smooth attractive tubers, and excellent chip quality and will chip-process from 45°F cold storage. In 2000 it was one of the best chip-processors in the 42°F MPIC demonstration storage. It yielded well in the on-farm trials, but the large tubers tended to elongate. It is also scab susceptible. This line is in the CHIPS2001 program.

MSG227-2 – a MSU chip-processing selection with strong scab resistance. It has a specific gravity acceptable for chip-processing, excellent chip quality and cold-chipping potential. The tubers are smooth-shaped with a flattened round appearance that is attractive. This line is in CHIPS2002. In 2000 it was one of the best chip-processors in the 42°F MPIC demonstration storage. This line will be considered for release in 2002.

MSH067-3 - a new chip-processing selection with cold-chipping potential. It has mid-season maturity and intermediate scab tolerance. The tubers are flattened and round.

MSH094-8 - a new chip-processing selection with cold-chipping potential from 42°F storage. This line also has a low incidence of internal defects and mid-season maturity.

MSH095-4 - a mid-season maturing line with excellent chip quality and bruise susceptibility equal to Snowden. It was comparable to Atlantic for yield and solids in 2001 at the Montcalm Research Farm. It was in the on-farm trials for the

first time in 2001.

MSJ461-1 – an exciting, new MSU chip-processing selection with strong foliar resistance to late blight, moderate scab resistance, and marketable maturity. It has excellent chip-processing quality and average yield, but an intermediate specific gravity.

NY120 – a Cornell University chip-processing selection with resistance to common scab. The specific gravity is in the range of 1.080 or lower. The chip-processing quality is high from out-of-the-field and from storage samples.

B. Round White Varieties: Tablestock (Tables 3 and 4)

There were 12 entries that were compared at two harvest dates. Onaway and Superior were used as checks. The plot yields were high in the early harvest (98 days), and little yield increase was observed for the second harvest date (141 days). Tuber specific gravity readings were above average. In the early harvest trial, Onaway, Michigan Purple, MSE221-1, MSH031-5, and MSF373-8 were the top yielding lines. There was very little incidence of internal defects in the early harvest. In the later harvest, MSF373-8, Onaway, MSE018-1, MSB107-1, and Michigan Purple were the top yielding lines. Overall, incidence of internal defects was typical in comparison to previous years, with slightly higher frequency of vascular discoloration, hollow heart, and some internal brown spots. MSF373-8 continues to be a high yielding line with a significantly higher percentage of large tubers, and it chip-processes well out of the field. Another strong performing line was Michigan Purple, which was released in 2001, that has a bright purple skin and excellent internal quality. Jacqueline Lee (MSG274-3), a smooth, bright-skinned, yellow-flesh variety with strong resistance to foliar late blight and marketable maturity, was also released in 2001.

Variety Characteristics

JACQUELINE LEE (MSG274-3) – an oval/oblong table stock selection with a high tuber set. The tubers have the bright skinned, smooth and attractive appearance that is typical of many European cultivars. The tubers have very low incidence of internal defects and good baking quality. The strength of this selection is its strong foliar resistance to the US8 genotype of late blight. Vine maturity is similar to Snowden.

MICHIGAN PURPLE - a tablestock selection with an attractive purple skin. This selection has high yield potential and the tubers have a low incidence of internal defects. The vine maturity is mid-season to mid-early. We regard this as a variety that can compete in the red market.

MSE018-1 - a very high yield potential, high specific gravity, and moderate tolerance to scab. It has a late maturity, large vine and some reduced susceptibility to late blight. Tuber appearance is bright and smooth with a round-oval shape. We regard this as a potential Katahdin replacement (baker).

MSE149-5Y – a MSU tablestock selection. It has high yield potential and produces attractive round tubers with a bright skin and light yellow flesh. It has been a top yielder in the on-farm trials. It chips out of 45°F cold storage, but has a low specific gravity. In the lab we have used this line for transformation with the starch gene to raise the specific gravity. These AGPase-transgenic lines were field-tested in 2000-1.

MSE221-1 - a MSU tablestock selection. It has high yield potential as seen in the MSU and on-farm trials. General appearance is good, but it has a netted appearance similar to Superior. It has strong resistance to scab. It is being considered for release in 2002.

MSF060-6 - a high yielding selection with scab resistance that produces large tubers that have excellent internal characteristics, and a smooth round shape.

MSF373-8 - a very high yielding selection with acceptable specific gravity for chip-processing. It will chip out-of-the-field and from 50°F storage. Produces large tubers with a low incidence of internal defects. Scab tolerance is intermediate.

MSG004-3 - a MSU tablestock selection. It has average yield potential and produces bright attractive tubers with good internal quality.

C. Long Whites and Russet Varieties (Table 5)

Five varieties and nineteen breeding lines were tested in 2001. Five of the lines evaluated were line selections of Russet Norkotah (Russet Norkotah 3, Russet Norkotah 8, TXNS112, TXNS223, and TXNS278). Russet Burbank and Russet Norkotah were grown as check varieties. The trial was dug 133 days from planting. The yield of the lines ranged widely with A8893-1, Bannock Russet, AC87079-3, and MSE202-3RUS having high yields; and Russet Norkotah and MSE192-8RUS with slightly below average yields. Internal defects were low, with the exception of A8893-1, AC97079-3, AC87138-4, and Russet Norkotah 3 (line selection), which had greater amounts of hollow heart in the oversize tubers. Of the Russet Norkotah line selections, only Russet Norkotah 3 performed significantly different from Russet Norkotah; however, the higher yield was also accompanied by an increase in internal defects (especially hollow heart). Russet Burbank was the only line to generate an undesirable amount of cull potatoes.

Variety Characteristics

MSB106-7 - a MSU tablestock selection. It has high yield potential as seen in the on-farm trials, but performed poorly at MSU. Tubers are oblong-long with a light netting. Internal quality is excellent and it has a very white flesh.

MSE192-8RUS - a MSU tablestock selection. The tubers have an attractive russetting and shape. The vine is small which may

make this line uncompetitive in small plot trials. The tuber type suggests that it be considered a replacement for Russet Norkotah. The tubers have a white flesh that does not darken after cooking. It has performed well in taste tests.

MSE202-3RUS – a MSU dual-purpose russet selection. It has a medium-late maturity and high yield potential. Its specific gravity is equivalent to Russet Burbank and the tubers are long with an attractive russet skin. Scab resistance is also high.

D. North Central Regional Trial (Table 6)

The North Central Trial is conducted in a wide range of environments (11 locations) to provide adaptability data for the release of new varieties from North Dakota, Minnesota, Wisconsin, Michigan and Canada. Twenty-two breeding lines and seven varieties were tested in Michigan. The yield was high and specific gravities of the lines were low in 2001. The range of yields was wide. Michigan Purple, MSF099-3, and MSE192-8RUS were all included in the North Central Trial for the first time in 2001. Similar to previous years, the MSU selection MSF373-8 performed well. Michigan Purple compared quite favorably to the other red-skinned entries in the trial. Other promising lines include the red-skinned selection ND3574-5R and the chip-processors NY112, W1386, and B0766-3. In general, the russet varieties and lines performed below average.

E. Yellow Flesh and European Trial (Table 7)

Thirteen varieties and advanced selections were tested in 2001. Yukon Gold and Saginaw Gold were used as checks. The trial was harvested after 137 days, and yields were above average and varied considerably. The best yielding lines in 2001 were MSJ033-10Y, MSI005-20Y, MSG147-3P, MSJ453-4Y, and Torridon. However, internal defects and late vine maturity make most of these lines undesirable at the commercial level. MSI005-20Y was a strong overall performing line with high yield, excellent internal quality, and medium-early maturity. Although all entries were evaluated for chip-processing quality out-of-the-field, few had acceptable chip color. An increase in incidence of internal defects was observed in 2001, most notably in Torridon and MSJ033-10Y. MSJ453-4Y, MSJ456-2Y and Torridon have foliar resistance to late blight.

F. Heritage Variety Trial (Table 8)

A new trial was added to the variety trials in 2001 to evaluate novelty and fingerling varieties that are often available as heritage variety material for the specialty market. Fifteen yellow flesh and novelty varieties, and 10 fingerling varieties were tested. Yields were remarkably low due to poor seed quality and high incidence of virus in this material. A wide range of values was observed for maturity and scab resistance, and none demonstrated foliar resistance to late blight in inoculated disease trials. Some of the varieties in the trial did have unique attributes for marketing and we hope to revisit this trial in 2002 with better quality seed.

G. Adaptation Trial (Table 9)

Four varieties and 37 advanced breeding lines were evaluated in the Adaptation trial. The trial was harvested after 144 days. The highest yielding lines were CACP10, Onaway, MSI037-4, A91790-13, MSI537-3, and MSH333-3. The best performing scab resistant lines were MSH228-6, MSI111-A, MSG301-9, MSNT-1, and MSH356-A, as well as others. The best lines with chip-processing quality were MSI111-A, MSE080-4, MSJ126-9, MSH015-2, AC91790-13, AC87340-3, BC0894-2, MSH370-3, MSI083-5, MSJ042-3, and MSI083-10. The following lines also had early maturity: MSE080-4, MSH370-3, MSI004-3, MSJ042-3, MSJ126-9, and MSG301-9. The lines with the best overall tablestock performance were MSI037-4, MSI537-3, and AF1763-2. The best overall chip-processing lines were CACP10, A91790-13, MSH333-3, A90490-1, MSH228-1, and MSH041-1.

H. Preliminary Trial (Tables 10A and B)

The Preliminary trial is the first replicated trial for evaluating new advanced selections from the MSU potato breeding program. Forty-two advanced selections and three check varieties were tested in two separate Preliminary trials. Due to the increase in the number of breeding lines with resistance to late blight, the overall Preliminary Trial was separated into the standard preliminary trial (Table 10A), and a preliminary trial of late blight pedigree material (Table 10B). The highest yielding lines were MSK068-2, MSJ167-1, MSJ080-1, and MSK217-3P. Lines with the best chip-processing quality are MSJ167-1, MSJ080-1, MSJ080-8, MSK476-1, MSJ147-1, MSJ197-1, MSJ047-5, MSJ170-4, and MSK236-5. Lines with the best potential for the round white tablestock market are MSK068-2, MSI152-A, MSK409-1, and MSJ204-3. MSJ472-4P is a blue-skinned line with white and blue flesh that chip-processes. Two yellow-flesh lines with average yield also had scab resistance (MSK247-9Y and MSK004-2Y). MSI152-A had above average yield, excellent internal quality, marketable maturity, and has demonstrated resistance to foliar late blight. Table 10B lists the results for the lines with late blight pedigrees. Of these lines, six have strong foliar resistance to late blight, and five of those lines have good to excellent processing qualities (MSJ17-1, MSK034-1, MSK128-1, MSJ319-1, and MSK101-2Y). Most of these lines also have marketable maturity. MSJ319-1 has strong resistance to both foliar and tuber late blight, scab resistance, high solids, marketable maturity, and excellent chip-processing quality.

I. Potato Scab Evaluation (Table 11)

Each year a replicated field trial at the MSU Soils Farm is conducted to assess resistance to common and pitted scab. For the second year, we are using a modified scale of a 0-5 ranking based upon a combined score for scab coverage and lesion severity. Usually examining one year's data does not indicate which varieties are resistant but it should begin to identify ones that can be classified as susceptible to scab. Our goal is to evaluate important advanced selections and varieties in the

study at least three years to obtain a valid estimate of the level of resistance in each line. Table 11 categorizes many of the varieties and advanced selections tested in 2001 at the MSU Soils Farm Scab Nursery. This disease trial is a severe test. The varieties and lines are placed into six arbitrary categories based upon scab infection level and lesion severity. A rating of 0 indicates zero infection. A score of 1.0 indicates a trace amount of infection. A moderate resistance (1.2 – 1.8) correlates with <10% infection. These three categories are good levels of scab tolerance. Susceptible lines have greater than 25% infection with pitted lesions. Scores of 4.0 or greater are found on lines with >50% infection and severe pitted lesions. The check varieties Russet Burbank, Superior, Onaway, Red Pontiac, Yukon Gold, Atlantic and Snowden can be used as references (bolded in Table 11). Table 11 indicates that we have been able to breed numerous lines for the chip-processing and tablestock markets with resistance to scab. Although scab disease pressure in 2001 was notably lower compared to other years, the data were separated into three categories (Resistant = 0.0-0.9; Moderately Resistant = 1.0; and Susceptible > 1.0 for this year). Most notable scab resistant lines are Liberator (MSA091-1), MSG227-2, MSE192-8RUS, MSE202-3RUS, MSE221-1, MSG301-9, MSH228-6, MSI111-A, and MSJ036-A. Scab results from the disease nursery are also found in the Trial Summaries (Tables 2, 4-10).

J. Late Blight Trial (Table 12)

In 2001, a late blight trial was conducted at the Muck Soils Research Farm. Over 200 entries were evaluated in replicated plots. The field was planted on 14 June and inoculated 28 July with isolates 94-3, 95-7, 98-2, and 00-1, and ratings were taken during August. Most lines were highly susceptible to the US-8 genotype of late blight. Included in this trial are the varieties and lines from the MSU trials at the Montcalm Research Farm and lines from the National Late Blight Variety Trial. Lines with the least infection from multi-year testing were LBR8, LBR9, A90586-1, Jacqueline Lee (MSG274-3), B0767-2, B0692-4, B0718-3, and Torridon (a Scottish variety). Jacqueline Lee (MSG274-3) has demonstrated strong late blight resistance over the past five years. Due to its excellent agronomic performance and foliar late blight resistance, Jacqueline Lee was released in 2001. In addition, many new MSU selections were in this top tier. Included in this group are MSJ461-1, MSJ459-4, MSJ457-2 and MSJ456-2Y, MSJ459-3 and MSJ453-4 which all are progeny of Tollocan; MSJ307-2, MSJ319-1, MSI152-A and MSJ319-7 which are progeny of B0718-3; and MSJ343-1 and MSI058-4 which are progeny of Brodick. We find these late blight resistant lines valuable because many of them also have marketable maturity. Many of these lines also have other desirable traits including scab resistance and chip-processing quality (see Table 10B). Tuber late blight resistance is being evaluated on all the selections with foliar late blight resistance.

K. Blackspot Susceptibility (Table 13A and B)

Increased evaluations of advanced seedlings and new varieties for their susceptibility to blackspot bruising have been implemented in the variety evaluation program. Check samples of 25 tubers were collected (a composite of 4 reps) from each cultivar at the time of grading. A second 25 tuber sample was similarly collected, placed in 50°F storage overnight and then was placed in a hexagon plywood drum and tumbled 10 times to provide a simulated bruise. Both samples were peeled in an abrasive peeler in October and individual tubers were assessed for the number of blackspot bruises on each potato. Table 13A summarizes the data for the samples receiving the simulated bruise and Table 13B, the check samples. The bruise data are represented in two ways: percentage of bruise free potatoes and average number of bruises per tuber. A high percentage of bruise-free potatoes is the desired goal; however, the numbers of blackspot bruises per potato is also important. Cultivars which show blackspot incidence greater than Atlantic are approaching the bruise-susceptible rating. In addition, the data is grouped by trial, since the bruise levels can vary between trials. Conducting the simulated bruise on 50°F tubers is helping to standardize the bruise testing. However, these results become more meaningful when evaluated over 3 years that reflects different growing seasons and harvest conditions. The data indicates that bruise levels were average compared to other years. The most bruise resistant lines this year were MSH098-2, MSH067-3, MSI032-6, MSH031-5, Eva, W1876-1, MSE202-3RUS, MSH026-3RUS, Dark Red Norland, W1431, MSF099-3, MSJ042-3, AF1758-7, BC0894-2, and MSJ126-9.

L. Post-harvest Disease Evaluation: *Fusarium* Dry Rot

As part of the post harvest evaluation, resistance to *Fusarium sambucinum* (fusarium dry rot) was assessed by inoculating 3 whole tubers post-harvest from selected lines and varieties in the 2001 MRF variety trials. The tubers were held at 20°C (room temperature) for approximately three weeks post inoculation with *Fusarium* mycelial plugs and then scored for dry rot infection depth and width. A total of 105 breeding lines and varieties were tested. Overall the mean infection depth of the lesion ranged from 4-29 mm. We classified 35 of the lines to have a lesser degree of infection from fusarium dry rot. In this group the infection ranged from 4-9 mm. Superior, GoldRush, NorValley, Eva and Michigan Purple were in this group. Liberator, MSE192-8Rus, MSH356-A and MSJ168-2Y were in this group with less infection for 2001 as well as for the 2000 evaluation. Other lines that had low infection levels include MSJ163-7R, MSJ147-1, MSJ047-5, MSE080-4, NY112, MSJ080-8, MSE018-1 and MSH067-3. The varieties classified as susceptible in this 2001 evaluation were Atlantic, Russet Burbank and Dakota Pearl.

Michigan Table 1. Round white chip potatoes: early harvest. Montcalm Research Farm. August 6, 2001 (98 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					CHIP		TUBER QUALITY ²				TOTAL		US#1	
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE ³	HH	VD	IBS	BC	CUT	MAT ⁴	CWT/A	US#1
ATLANTIC	348	390	89	9	84	5	2	1.085	1.0	0	0	0	0	40	3.0		342
MSH095-4	342	389	88	11	79	9	1	1.083	1.0	0	0	0	0	40	3.0		-
NY120	324	364	89	9	86	3	2	1.078	1.0	0	1	0	0	40	2.9		-
MSH067-3	308	347	89	9	80	8	2	1.082	1.0	2	0	0	0	40	2.8		-
MSH098-2	306	333	92	6	70	22	2	1.077	1.0	3	0	2	0	40	2.6		-
P83-11-5	289	379	76	11	71	6	13	1.079	1.0	1	0	3	0	40	2.6		279
W1386	286	366	78	17	74	4	5	1.074	1.0	1	0	0	0	40	2.5		-
MSH094-8	277	337	82	16	81	2	2	1.076	1.0	0	0	0	0	40	2.5		340*
DAKOTA PEARL	266	367	73	26	72	1	1	1.073	1.5	0	0	0	1	40	2.1		-
MSA091-1	261	331	79	12	72	7	9	1.078	1.0	0	1	2	0	40	2.5		260
PIKE	249	280	89	10	84	5	1	1.078	1.0	0	0	0	0	40	3.4		264*
MSG227-2	247	313	79	19	75	4	2	1.076	1.0	2	0	0	0	40	3.4		287
SNOWDEN	247	310	80	20	78	1	1	1.079	1.0	0	0	0	0	40	3.0		247
MSI032-6	238	287	83	17	79	4	0	1.074	1.5	1	0	0	1	40	2.6		-
MSG015-C	238	315	76	23	67	8	2	1.070	1.5	0	0	0	0	40	2.4		294*
MSF099-3	205	282	73	25	70	3	3	1.080	1.0	2	1	0	0	40	2.8		245
MSJ461-1	204	320	64	36	63	0	1	1.067	1.0	0	0	0	0	40	3.1		-

MEAN	273	336						1.077									* Two-Year Average
LSD _{0.05}	50	52						0.004									

¹SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

²QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.

³CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

⁴MATURITY RATING: Taken August 6, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)

Planted May 1, 2001

Michigan Table 2. Round white chip potatoes: late harvest. Montcalm Research Farm. September 21, 2001 (144 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ³	TUBER QUALITY ²				TOTAL NURSERY TRIAL			US#1 CWT/A	
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC	CUT	SCAB ⁴	SCAB ⁴		MAT ⁵
NY120	451	488	92	4	86	6	3	1.074	1.0	0	15	0	0	40	0.3	0.0	2.9	-
ATLANTIC	448	491	91	7	81	10	2	1.081	1.0	4	0	14	3	40	1.8	2.0	3.0	397
MSH095-4	444	496	89	8	74	15	3	1.080	1.5	1	2	1	0	40	0.7	0.8	3.0	-
MSG227-2	403	449	90	8	76	14	2	1.073	1.5	1	1	6	2	40	0.3	0.3	3.4	359
SNOWDEN	396	458	86	13	83	4	1	1.076	1.5	0	2	0	0	40	-	1.8	3.0	338
MSA091-1	395	460	86	8	75	10	6	1.075	1.5	1	3	8	6	40	0.3	0.0	2.5	332
MSH067-3	370	420	88	9	77	12	3	1.078	1.0	1	0	0	0	40	2.0	2.5	2.8	-
MSH094-8	370	420	88	10	76	12	2	1.073	1.0	0	0	10	2	40	1.3	0.8	2.5	399*
PIKE	355	388	92	8	86	6	1	1.080	1.0	0	0	22	0	40	-	0.0	3.4	345*
W1386	345	436	79	11	69	11	10	1.073	1.5	1	7	2	0	40	1.5	2.3	2.5	-
MSH098-2	344	381	90	6	62	29	3	1.074	1.5	3	1	0	4	40	1.0	3.0	2.6	-
P83-11-5	332	455	73	9	68	5	18	1.075	1.0	4	2	3	7	40	1.0	1.0	2.6	320
DAKOTA PEARL	320	407	79	19	74	4	2	1.069	1.5	1	4	0	2	40	0.7	0.3	2.1	-
MSG015-C	304	384	79	18	71	8	3	1.067	2.0	0	5	0	0	40	1.0	0.3	2.4	352*
MSI032-6	301	352	86	12	79	7	2	1.070	1.0	0	2	2	1	40	3.0	2.3	2.6	-
MSJ461-1	300	451	66	33	66	0	1	1.067	1.0	0	0	0	0	40	1.0	1.0	3.1	-
MSF099-3	280	363	77	20	70	7	3	1.075	1.5	2	1	0	0	40	3.0	3.0	2.8	298

* Two-Year Average

¹SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.²QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.³CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.⁴SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.⁵MATURITY RATING: Taken August 6, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)

Planted May 1, 2001

Michigan Table 3. Round white tablestock potatoes: early harvest. Montcalm Research Farm. August 6, 2001 (98 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					TUBER QUALITY ²					TOTAL		US#1	
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP	GR	HH	VD	IBS	BC	CUT	MAT ³	CWT/A
ONAWAY	448	483	93	6	89	4	1	1.071		0	0	0	0	40	1.9	377
MICHIGAN PURPLE	399	428	93	7	87	6	0	1.073		2	0	0	0	40	2.0	-
MSE221-1	359	412	87	6	68	20	7	1.068		6	0	0	0	40	2.0	353
MSH031-5	348	398	88	12	85	2	1	1.070		2	0	0	0	40	2.5	375*
MSF373-8	324	351	92	5	73	19	3	1.074		8	0	0	0	40	3.0	395*
MSE149-5Y	316	378	83	13	77	6	3	1.065		3	0	1	0	40	2.0	300
MSB107-1	313	357	88	6	78	9	7	1.071		0	0	0	0	40	2.8	-
SUPERIOR	307	367	84	15	81	3	2	1.071		0	1	0	0	40	1.4	312
EVA	307	354	87	10	84	3	3	1.066		0	0	0	0	40	2.0	-
MSE018-1	268	349	77	22	74	3	1	1.079		0	0	0	0	40	4.0	343
MSF313-3	227	298	76	23	74	3	1	1.077		0	0	0	0	40	3.0	253
MSG004-3	221	254	87	11	81	6	2	1.062		0	0	0	0	40	2.0	266*
MSF060-6	216	249	87	13	84	2	0	1.075		1	0	0	1	40	3.0	-
JACQUELINE LEE	131	402	33	65	33	0	2	1.079		0	0	0	0	40	3.0	157
MEAN	299	363						1.072								
LSD _{0.05}	62	59						0.007								* Two-Year Average

¹SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

²QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.

³MATURITY RATING: Taken August 6, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)
Planted May 1, 2001

Michigan Table 4. Round white tablestock potatoes: late harvest. Montcalm Research Farm. September 18, 2001 (141 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	TUBER QUALITY ²				TOTAL NURSERY		TRIAL		US#1 CWT/A	
	US#1	TOTAL	US#1	Bs	As	OV	PO		HH	VD	IBS	BC	CUT	SCAB ³	SCAB ³	MAT ⁴		
MSF373-8	462	492	94	3	59	34	4	1.072	5	0	0	1	40	1.3	2.0	3.0	490*	
ONAWAY	383	423	91	7	86	5	3	1.063	0	8	0	0	40	0.8	0.5	1.9	396	
MSE018-1	359	421	85	13	76	10	2	1.075	0	16	4	0	40	2.3	3.0	4.0	426	
MSB107-1	321	416	77	5	62	15	18	1.067	0	0	3	0	40	1.0	2.5	2.8	-	
MICHIGAN PURPLE	320	358	89	7	78	12	3	1.065	0	0	0	2	40	2.0	3.3	2.0	-	
EVA	318	351	90	7	77	14	2	1.061	3	2	0	2	40	1.7	2.5	2.0	-	
MSE221-1	312	363	86	5	67	19	9	1.066	1	4	1	0	40	0.7	1.5	2.0	360	
MSH031-5	310	366	85	11	80	4	5	1.071	0	2	0	0	40	2.7	2.8	2.5	378*	
MSE149-5Y	303	358	85	9	73	11	6	1.059	10	1	1	0	40	1.3	1.5	2.0	329	
MSF313-3	287	354	81	17	79	2	2	1.069	0	2	0	0	40	1.7	2.8	3.0	305	
MSF060-6	267	297	90	8	82	8	2	1.073	1	5	3	1	40	0.3	0.3	3.0	-	
SUPERIOR	248	314	79	17	79	0	4	1.067	0	4	1	0	40	0.5	0.5	1.4	304	
MSG004-3	229	254	90	10	80	10	0	1.058	0	1	3	0	40	1.0	1.0	2.0	300*	
JACQUELINE LEE	189	415	46	47	46	0	7	1.072	0	1	0	0	40	2.3	3.8	3.0	262	
MEAN	308	370							1.067									
LSD _{0.05}	54	53							0.003							* Two-Year Average		

* Two-Year Average

¹SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

²QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.

³SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

⁴MATURITY RATING: Taken August 6, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)

Planted May 1, 2001

Michigan Table 5. Long white and russet trial. Montcalm Research Farm. September 10, 2001 (133 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					TUBER QUALITY ²					TOTAL		US#1 CWT/A	
	US#1	TOTAL	US#1	Bs	As	OV	PO	SPGR	HH	VD	IBS	BC	CUT	SCAB ³		MAT ⁴
A8893-1	390	508	77	19	62	14	4	1.068	11	0	2	1	40	0.0	2.6	379*
BANNOCK RUSSET	370	443	84	15	65	18	1	1.074	0	1	0	0	40	0.0	4.8	463*
AC87079-3	361	437	83	15	59	24	3	1.071	20	0	0	0	40	-	3.1	-
MSE202-3RUS	348	425	82	13	58	24	5	1.067	5	0	0	0	40	0.3	3.4	351
A90586-11	348	472	74	24	66	7	2	1.076	2	0	1	0	40	2.5	3.6	-
SILVERTON RUSSET	342	423	81	17	70	11	2	1.065	1	1	1	0	40	0.0	3.3	-
MSH026-3RUS	335	432	78	17	70	8	5	1.069	9	0	6	0	40	1.3	2.9	-
AC87138-4	323	426	76	18	57	19	6	1.071	12	1	0	0	40	0.7	4.0	-
MSB106-7	320	428	75	14	55	19	11	1.063	4	1	1	0	40	1.3	1.6	288
RUSSET NORKOTAH 3	310	383	81	17	60	21	2	1.066	14	1	1	3	40	0.0	2.6	-
W1876-1	301	381	79	20	75	4	1	1.070	0	0	0	0	40	0.3	2.0	-
AC89536-5	274	415	66	26	54	12	8	1.075	5	0	0	0	40	0.0	3.6	-
MSE192-8RUS	268	393	68	29	60	9	3	1.065	0	0	0	0	40	0.0	1.5	215
GOLDRUSH	255	335	76	22	61	15	2	1.063	0	1	0	0	40	0.0	2.3	-
TXNS278	253	384	66	32	57	9	2	1.064	2	1	1	0	40	-	1.6	-
TXNS223	245	350	70	28	56	14	2	1.063	0	0	0	0	40	0.3	1.8	-
RUSSET NORKOTAH	242	368	66	34	61	5	0	1.065	1	0	0	0	40	0.0	1.5	211
C085026-4	234	311	75	24	71	4	1	1.074	0	0	0	0	40	3.0	3.8	-
RUSSET NORKOTAH 8	231	331	70	26	57	13	4	1.064	4	2	0	0	40	0.0	1.9	-
W1879-1	185	321	57	42	56	1	1	1.070	1	0	0	0	40	1.0	1.8	-
RUSSET BURBANK	177	335	53	26	49	4	21	1.067	0	2	0	0	40	0.7	2.8	210
TXNS112	176	327	54	45	50	3	2	1.064	1	0	1	0	40	0.0	1.3	-
ATX85404-8W	471	528	89	10	71	18	0	1.067	9	0	2	0	40	0.7	3.5	-
NDTX4930-5W	409	475	86	13	83	3	1	1.070	3	4	1	0	40	2.7	2.4	-

MEAN	299	401	1.068														
LSD _{0.05}	69	76	0.003														

* Two-Year Average

¹SIZE: B: < 4oz.; A: 4-10oz.; OV: > 10oz.; PO: Pickouts.

²QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.

³SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

⁴MATURITY RATING: Taken August 17, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)
Planted May 1, 2001

Michigan Table 6. North Central Regional Trial. Montcalm Research Farm. September 5, 2001 (128 days)

ENTRY	CWT/A		PERCENT OF TOTAL ¹					CHIP		TUBER QUALITY ²				TOTAL	
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE ³	HH	VD	IBS	BC	CUT	SCAB ⁴ MAT ⁵ MERIT ⁶
ND5084-3R	516	570	91	8	74	16	1	1.053	0.7	0	1	9	0	40	0.7 3.8
RED PONTIAC*	468	553	84	9	76	9	7	1.056	3.0	2	2	1	1	30	2.0 2.8
NY112	459	503	91	8	81	10	0	1.072	1.5	0	3	4	0	40	0.7 3.3 3
D.R. NORLAND	454	491	93	7	92	1	1	1.058	1.5	0	1	1	1	40	- 1.1 3
W1386	446	496	90	8	78	12	2	1.075	1.5	0	11	1	0	40	1.0 3.3
W1201	429	483	89	10	83	5	1	1.083	1.5	0	7	3	0	40	1.0 3.0 2
B0766-3	419	457	92	8	84	8	0	1.075	1.5	0	1	0	1	40	1.0 3.0 1
NORVALLEY	396	499	79	20	76	4	1	1.069	1.0	1	4	2	0	40	- 2.4
MSF373-8	394	424	93	4	54	39	3	1.072	1.0	3	0	0	1	40	1.3 3.3
A90586-11	376	472	80	16	70	10	5	1.074	2.0	3	2	0	0	40	2.5 3.3
V0299-4	374	520	72	27	72	0	1	1.063	1.5	0	0	4	0	40	2.0 1.3
MICHIGAN PURPLE	366	415	88	8	70	18	3	1.066	2.5	0	1	0	0	40	2.0 1.8 2
W1836-1RUS	361	447	81	19	77	4	1	1.073	2.0	2	1	0	0	40	0.0 3.1 1
DAKOTA ROSE	352	415	85	11	81	4	4	1.053	3.0	1	3	1	1	40	- 1.3 1
MN19525R	350	434	81	19	78	3	1	1.062	1.0	0	2	6	1	40	0.0 1.9
CV89023-2	335	436	77	23	74	3	0	1.065	2.5	1	4	3	2	40	1.0 1.4
ATLANTIC*	335	384	87	11	73	14	2	1.080	1.5	7	1	8	6	30	1.8 2.7
W1431	327	384	85	14	84	1	1	1.074	1.5	1	1	1	0	40	0.7 2.8
ND3196-1R	327	369	88	11	85	3	0	1.063	3.5	4	2	0	14	40	- 1.1
MN18747	307	405	76	22	74	2	2	1.062	1.5	0	3	0	0	40	1.0 1.4
MN19157	298	454	66	33	65	0	1	1.075	2.0	0	1	2	0	40	- 1.6
V0168-3	278	361	77	20	71	6	3	1.062	2.5	1	0	0	1	40	2.3 1.0
SNOWDEN	277	370	75	24	71	4	1	1.073	1.0	3	4	0	1	40	- 2.3
RUSSET BURBANK*	256	432	59	36	58	2	5	1.070	2.5	4	0	2	0	30	0.7 2.2
MSF099-3	237	294	81	12	68	12	8	1.078	1.5	0	2	1	2	40	2.7 2.4

Michigan Table 6. North Central Regional Trial. Montcalm Research Farm. September 5, 2001 (128 days)

ENTRY	CWT/A		PERCENT OF TOTAL ¹					CHIP SCORE ³		TUBER QUALITY ²				TOTAL	
	US#1		TOTAL	US#1	Bs	As	OV	PO	SP	GR	HH	VD	IBS	BC	CUT
	US#1	TOTAL	US#1	US#1	Bs	As	OV	PO	SP	GR	HH	VD	IBS	BC	CUT
V0123-25	223	405	55	42	54	1	3	1.071	1.0	1	3	0	0	0	40
RUSSET NORKOTAH*	217	344	62	39	61	1	0	1.064	2.0	0	1	0	0	0	30
MSE192-8RUS	189	307	61	37	57	4	2	1.065	2.5	0	0	0	0	0	40
MN19315	146	338	43	56	43	0	0	1.070	1.5	2	3	1	1	1	40
MEAN	342	430						1.068							
LSD _{0.05}	81	75						0.002							

*These entries had 3 replications, as compared to the 4 replications for all other entries.

¹SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

²QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.

³CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

⁴SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

⁵MATURITY RATING: Taken August 17, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

⁶MERIT: A Merit rating was given for the best 3 entries in each market class (rank order, 1 = best).

Planted May 1, 2001

Michigan Table 7. Yellow flesh and European trial. Montcalm Research Farm. September 14, 2001 (137 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					CHIP		TUBER QUALITY ²					TOTAL	
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP	GR	SCORE ³	HH	VD	IBS	BC	CUT	SCAB ⁴ MAT ⁵
MSJ033-10Y	472	552	86	11	72	14	3	1.063		4.0	1	10	19	0	40	1.0 3.5
MSI005-20Y	455	560	81	16	76	6	3	1.068		2.5	0	1	0	2	40	2.0 2.5
MSG147-3P	431	503	86	8	70	15	6	1.058		1.5	0	0	0	0	40	2.0 3.8
MSJ453-4Y	416	541	77	19	74	3	4	1.084		2.0	5	6	5	1	40	2.3 5.0
TORRIDON	414	597	69	22	67	2	9	1.078		2.5	5	0	14	0	40	2.7 4.4
SAGINAW GOLD	409	500	82	15	80	2	3	1.072		2.0	0	2	2	0	40	1.7 1.8
MSH380-3Y	403	496	81	15	78	3	4	1.082		2.0	0	4	4	1	40	2.0 3.0
MSJ033-6Y	344	429	80	13	59	22	6	1.066		3.5	5	1	1	3	40	1.0 3.4
MSJ456-2Y	342	470	73	17	70	3	10	1.076		2.5	1	1	0	0	40	2.7 3.1
MSJ049-1Y	328	400	82	11	71	11	7	1.068		3.5	1	0	1	0	40	2.0 2.3
YUKON GOLD	297	335	89	5	68	21	6	1.072		2.5	7	1	2	3	40	2.3 1.4
MSJ472-4P	232	351	66	33	65	1	1	1.082		1.5	0	0	0	0	40	2.0 4.1
MSI092-3RY	225	359	63	34	50	12	4	1.066		3.0	1	1	3	0	40	2.7 2.1
MEAN	367	469						1.072								
LSD _{0.05}	69	68						0.004								

¹SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

²QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.

³CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

⁴SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

⁵MATURITY RATING: Taken August 17, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Planted May 1, 2001

Michigan Table 8. Heritage potato variety trial. Montcalm Research Farm. September 11, 2001 (134 days)

YELLOW FLESH and NOVELTY LINES		CWT/A		PERCENT OF TOTAL ¹					CHIP			TUBER QUALITY ²					TOTAL		RAUDPC ⁶ INCIDENCE	
US#1	TOTAL	US#1	Bs	As	OV	PO	SP	GR	SCORE ³	HH	VD	IBS	BC	CUT	SCAB ⁴	MAT ⁵	x100	OF VIRUS		
Gold Nugget	267	353	76	17	75	1	8	1.066	1.5	0	3	6	0	20	1.0	3.8	18.0	PLRV		
Viking Purple	243	277	88	10	79	9	2	1.063	2.5	0	1	0	0	20	0.5	1.3	34.4	PVY		
Augsburg Gold	239	301	80	17	76	3	3	1.067	1.0	0	0	1	0	20	2.0	3.0	17.7	PLRV		
Kerrs Pink	234	308	76	24	72	4	0	1.061	2.0	0	0	2	2	20	2.0	2.3	23.8			
Arran's Pilot*	229	295	78	9	71	7	14	1.063	1.5	0	6	1	1	20	0.3	2.3	30.0			
Purple Chief	221	264	84	10	80	4	6	1.062	2.0	0	3	6	0	20	1.5	1.0	28.7			
Carola	188	303	62	29	58	4	9	1.064	2.0	1	0	0	3	20	3.0	1.0	26.8	PLRV		
All Blue	174	292	60	39	60	0	1	1.067	1.5	0	0	0	0	20	3.3	2.0	25.0			
German Butterball*	153	260	59	39	59	0	2	1.064	3.0	0	0	5	0	10	1.7	3.3	25.8			
Anoka	152	208	73	12	69	4	15	1.058	2.0	1	6	2	0	20	1.7	2.0	28.0	PLRV		
Catriona	148	233	63	26	63	0	11	1.062	3.0	5	2	1	1	20	3.0	2.0	30.2			
Caribe*	132	149	89	11	80	8	0	1.069	1.0	0	0	0	0	20	0.5	1.0	-			
Rhine Gold	115	191	60	38	60	0	2	1.069	2.0	0	1	0	0	20	2.0	1.3	-			
Caribe Sport	78	103	76	24	73	3	0	1.063	2.0	0	0	1	0	20	0.3	1.0	32.5	VIRUS?		
Blue Mac	43	96	44	35	44	0	20	1.059	1.0	0	0	7	0	20	2.5	3.0	33.3	PVY		
MEAN	175	242						1.064												
FINGERLINGS																				
Ozette	173	-	100	0	100	0	0	1.075	1.5	0	3	0	0	20	1.0	4.5	27.8			
French Fingerling	110	-	100	0	100	0	0	1.061	1.5	0	1	3	0	20	1.7	1.5	31.3	PVY		
Rose Fin Apple	98	-	100	0	100	0	0	1.072	1.0	0	2	0	0	20	0.7	2.3	29.1	PVY		
Red Thumb	87	-	100	0	100	0	0	1.066	1.5	0	0	2	0	20	1.0	1.0	33.0	PLRV		
Russian Banana	86	-	100	0	100	0	0	1.062	2.5	0	1	0	0	20	0.7	1.5	33.0	PVY		
Butterfinger*	80	-	100	0	100	0	0	1.069	1.5	0	2	1	0	20	2.0	2.3	30.6	PVY		
Indian Pit	76	-	100	0	100	0	0	1.060	2.0	1	0	3	0	20	-	1.3	29.2	PVY		
Cowhorn*	60	-	100	0	100	0	0	1.069	1.5	0	3	12	0	20	0.5	2.3	26.3	PVY		
Purple Peruvian	52	-	100	0	100	0	0	1.083	1.5	0	0	0	0	20	1.5	5.0	25.8			
Huckleberry	32	-	100	0	100	0	0	1.059	1.5	0	0	0	0	20	0.0	1.0	38.2	PLRV		
MEAN	85							1.068												

*Poor stand

¹SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

²QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.

³CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

⁴SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

⁵MATURITY RATING: Taken August 17, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering)

⁶RAUDPC: Relative Area Under the Disease Progress Curve (from MSU Late Blight Trial). A RAUDPC (x100) value > 15 is classified as susceptible to Late Blight.

Planted May 1, 2001

Michigan Table 9. Adaptation trial. Montcalm Research Farm. September 21, 2001 (144 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					SP GR	CHIP SCORE ³	TUBER QUALITY ²				TOTAL NURSERY		
	US#1	TOTAL	US#1	Bs	As	OV	PO			HH	VD	IBS	BC	CUT	SCAB ⁴	MAT ⁵
CACP10	501	547	92	7	82	9	1	1.075	1.5	0	5	0	0	40	1.3	3.0
ONAWAY	477	507	94	5	90	5	1	1.066	-	0	12	0	0	40	0.8	1.5
MSI037-4	458	528	87	12	79	8	2	1.076	2.0	0	4	0	1	40	3.0	4.5
A91790-13	450	519	87	13	82	5	1	1.078	1.0	0	1	0	1	40	2.0	4.0
MSI537-3	433	481	90	9	81	9	1	1.063	-	4	1	2	0	40	1.7	2.3
MSH333-3	432	475	91	8	85	6	1	1.068	1.5	0	0	1	0	40	3.7	2.4
CACP15	427	458	93	7	84	9	0	1.068	2.0	0	2	0	0	40	2.0	2.1
ATLANTIC	426	453	94	5	76	18	1	1.084	1.5	5	0	6	1	40	1.8	3.0
A90490-1	424	457	93	6	65	28	1	1.069	2.0	1	0	0	4	40	1.7	4.8
AF1763-2	419	509	82	15	79	4	2	1.058	2.5	0	0	0	1	40	2.0	1.5
MSH228-6	403	445	91	7	77	13	2	1.071	1.5	0	4	1	0	40	0.0	3.4
MSH041-1	398	429	93	7	68	25	1	1.068	1.5	3	3	0	2	40	2.0	2.3
CACP20	397	438	91	8	76	14	1	1.072	2.5	0	4	0	0	40	2.3	3.1
MSI077-5	381	423	90	9	73	17	1	1.068	-	0	1	0	0	40	3.0	3.0
MSI085-10	379	435	87	12	75	12	1	1.077	1.0	0	3	1	0	40	3.3	3.9
AC87340-2	379	469	81	19	77	4	1	1.070	1.0	0	2	0	0	40	2.0	2.8
MSI582-A	371	421	88	8	77	12	4	1.066	-	0	1	0	2	40	2.3	3.1
SNOWDEN	371	425	87	12	84	4	0	1.075	1.5	0	1	0	1	40	-	2.8
AF1615-1	358	412	87	12	78	10	1	1.067	2.0	1	2	2	1	40	1.3	2.9
SUPERIOR	356	404	88	11	86	2	1	1.067	-	0	3	0	1	40	0.7	1.1
CACP25	350	417	84	16	83	1	0	1.071	1.5	1	0	0	0	40	1.3	2.0
MSJ438-2	348	451	77	21	76	2	2	1.098	2.0	1	4	0	0	40	0.7	4.6
MSJ307-2	329	390	84	10	65	20	5	1.056	-	0	0	0	0	40	1.7	3.5
MSE080-4	328	360	91	8	62	29	1	1.070	1.0	4	1	0	0	40	0.7	1.9
BC0894-2	317	391	81	17	79	2	1	1.062	1.0	0	1	0	0	40	2.0	1.4
MSI083-5	312	361	86	12	76	11	2	1.072	1.0	2	1	2	0	40	2.3	3.6
MSH017-C	306	335	91	6	67	24	3	1.081	1.5	4	1	0	0	40	1.7	2.6
MSH360-1	303	363	83	13	72	12	4	1.077	2.0	2	1	0	0	40	2.0	2.4
AF1758-7	298	395	75	12	60	16	13	1.052	-	1	4	3	2	40	0.7	3.3
MSH120-1	294	398	74	25	71	3	1	1.071	2.5	5	0	2	11	40	0.7	2.8

LINE	CWT/A		PERCENT OF TOTAL ¹							CHIP SCORE ³	TUBER QUALITY ²				TOTAL NURSERY		
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	HH		VD	IBS	BC	CUT	SCAB ⁴	MAT ⁵	
MSJ319-7	286	330	87	12	74	13	2	1.068	-	0	1	0	0	40	1.7	3.6	
MSH015-2	284	342	83	13	80	3	4	1.081	1.0	1	0	2	1	40	1.3	2.3	
MSH356-A	280	332	84	13	77	7	2	1.077	1.5	2	2	0	0	40	0.3	2.6	
MSH370-3	270	385	70	29	69	1	1	1.075	1.0	0	1	0	0	40	2.0	1.4	
MSI004-3	262	353	74	20	68	7	5	1.072	-	1	3	0	0	40	0.7	1.4	
MSI111-A	254	291	87	11	73	14	1	1.082	1.0	21	0	0	0	40	0.0	3.9	
A92584-3BB	246	471	52	46	52	0	2	1.063	-	0	1	1	0	40	3.3	2.1	
MSJ042-3	241	379	64	36	63	0	1	1.076	1.0	0	1	4	0	40	2.5	1.8	
MSJ126-9	241	306	79	21	75	4	1	1.072	1.0	0	1	0	0	40	1.0	1.6	
MSG301-9	231	282	82	16	75	7	2	1.069	2.0	0	2	1	0	40	0.0	1.5	
MSNT-1	217	297	73	26	71	2	1	1.074	-	1	2	0	0	40	0.0	2.1	
MEAN	347	411						1.071									
LSD _{0.05}	53	51						0.003									

¹SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

²QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.

³CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

⁴SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

⁵MATURITY RATING: Taken August 17, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Planted May 1, 2001

Michigan Table 10A. Preliminary trial. Montcalm Research Farm. September 27, 2001

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LINE	CWT/A		PERCENT OF TOTAL ¹					CHIP		TUBER QUALITY ²				TOTAL		PEDIGREE		
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP GR	SCORE ³	HH	VD	IBS	BC	CUT	SCAB ⁴	MAT ⁵	FEMALE	MALE
MSK068-2	480	580	83	16	77	6	2	1.070	-	1	2	1	1	20	2.3	3.8	E041-1	H142-2
MSJ167-1	470	551	85	12	78	7	3	1.083	1.5	0	0	0	0	20	1.0	4.5	P84-13-12	E250-2
MSJ080-1	436	488	89	10	74	15	1	1.062	1.0	0	0	0	0	20	1.0	1.8	C148-A	S440
MSK217-3P	427	476	90	6	59	31	4	1.066	-	0	0	0	1	20	1.0	2.0	RUSSIAN BLUE	PICASSO
MSI152-A *	416	482	86	11	67	19	3	1.062	-	1	0	0	0	20	1.7	2.5	MAINESTAY	B0718
MSJ080-8	412	461	89	9	80	10	1	1.071	1.0	1	0	0	0	20	1.0	1.8	C148-A	S440
MSK409-1	412	464	89	10	74	15	1	1.073	-	1	0	0	0	20	1.5	2.8	C148-A	A091-1
MSJ204-3	406	458	89	6	75	14	5	1.058	-	0	1	0	0	20	1.0	2.8	SUPERIOR	OP
ONAWAY	402	430	94	5	82	12	2	1.063	-	0	1	0	0	20	0.8	1.0		
MSK476-1	402	452	89	9	81	7	3	1.087	1.0	3	0	0	2	20	1.0	2.3	H361-1	H228-6
MSK125-3	402	483	83	15	75	8	2	1.068	-	6	0	0	0	20	-	1.3	G214-1	G274-3
MSJ147-1	386	473	82	14	78	3	4	1.072	1.0	0	0	3	0	20	2.0	1.8	ND2417-6	S440
MSK061-4	373	441	85	15	85	0	0	1.080	1.5	0	0	0	0	20	0.3	1.5	C148-A	ND2676-10
MSJ197-1	369	393	94	5	56	37	1	1.066	1.0	0	1	0	1	20	2.7	2.8	SNOWDEN	A7961-1
MSK247-9Y	350	401	87	10	77	11	3	1.069	-	7	0	0	0	20	0.7	1.5	YUKON GOLD	PICASSO
MSJ163-7R	335	387	86	14	74	12	0	1.090	1.5	1	0	0	1	20	2.3	1.3	PIKE	ZAREVO
MSJ143-4	326	420	78	21	75	3	1	1.079	1.5	0	0	0	0	20	2.0	1.8	ND01496-1	S440
MSK469-1	292	379	77	22	71	6	1	1.081	-	0	0	1	2	20	2.0	2.0	H216-1	H228-6
MSK004-2Y	287	375	76	17	65	11	7	1.062	-	0	0	1	0	20	0.7	1.0	A097-1	PICASSO
MSI061-B	287	331	87	12	73	13	1	1.069	-	2	0	0	1	20	1.0	1.0	BRODICK	ND01496-1
MSJ047-5	282	379	74	24	74	0	1	1.076	1.0	0	0	0	0	20	1.3	1.3	B076-2	S438
MSJ168-2Y	266	296	90	8	79	11	2	1.065	-	0	2	0	0	20	1.7	1.3	P84-13-12	ND860-2
MSJ157-B	265	342	78	13	54	24	9	1.078	-	1	0	6	0	20	2.0	2.0	PIKE	C127-3
MSJ494-1	249	349	71	27	70	2	2	1.087	1.5	2	1	0	0	20	1.0	2.0	PIKE	ZAREVO
MSJ170-4	245	358	68	30	68	1	1	1.078	1.0	0	1	0	0	20	1.7	1.8	P84-13-12	S440
MSJ482-2	216	327	66	31	66	0	3	1.092	1.5	0	0	0	0	20	1.5	1.5	ZAREVO	C127-3
MSK236-5	189	266	71	24	69	2	5	1.077	1.0	1	0	0	1	20	1.7	1.5	SNOWDEN	H094-3

LINE	CWT/A		PERCENT OF TOTAL ¹						CHIP SCORE ³		TUBER QUALITY ²				TOTAL		PEDIGREE	
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP	GR	HH	VD	IBS	BC	CUT	SCAB ⁴	MAT ⁵	FEMALE	MALE
MEAN	348	416							1.073									
LSD _{0.05}	96	107							0.005									

¹SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

²QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.

³CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

⁴SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

⁵MATURITY RATING: Taken September 4, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

Planted May 2, 2001 * MSI152-A has demonstrated resistance to Late Blight (*Phytophthora infestans*) in inoculated field trials.

Michigan Table 10B. Preliminary trial (Late blight pedigree material). Montcalm Research Farm. September 27, 2001 (142 days)

LINE	CWT/A		PERCENT OF TOTAL ¹					CHIP		TUBER QUALITY ²					TOTAL		PEDIGREE			
	US#1	TOTAL	US#1	Bs	As	OV	PO	SP	GR	SCORE ³	HH	VD	IBS	BC	CUT	SCAB ⁴	MAT ⁵	LB ⁶	FEMALE	MALE
MSJ316-AY	555	603	92	7	74	18	1	1.074	-	0	0	0	6	0	20	1.0	4.3	S	PIKE	B0718-3
ATLANTIC	534	551	97	3	63	34	0	1.083	1.0	5	0	3	2	2	20	1.8	1.8	S		
MSJ031-6	520	577	90	8	82	8	2	1.068	1.0	2	0	0	0	0	20	1.0	1.3	RS	ATLANTIC	TOLLOCAN
MSK498-1Y	489	540	91	8	84	6	1	1.072	-	0	0	0	0	0	20	1.0	3.0	S	SAGINAW GOLD	BRODICK
MSJ317-1 *	486	521	93	5	87	6	2	1.074	1.5	0	0	0	0	0	20	2.0	4.0	LBR	PRESTILE	B0718-3
MSK214-1R	484	534	91	8	77	14	1	1.062	-	0	0	1	1	0	20	0.5	2.0	S	PRESTILE	PICASSO
MSJ036-A	467	523	89	11	84	5	0	1.074	-	0	0	1	1	5	20	0.0	2.0	S	A7961-1	ZAREVO
MSI049-A	459	524	88	10	65	23	3	1.060	-	2	0	2	0	0	20	1.5	1.5	S	BRODICK	C121-7
MSK034-1 *	446	505	88	8	79	9	4	1.072	1.0	1	0	0	0	0	20	2.0	3.5	LBR	B0718-3	H133-2
MSK410-2Y	424	500	85	13	81	4	2	1.082	1.5	0	1	0	1	1	20	2.0	3.0	S	C148-A	G274-3
MSJ456-4Y	397	490	81	18	79	2	1	1.077	-	1	1	2	2	2	20	1.0	3.3	LBR	CONESTOGA	TOLLOCAN
MSK128-1	367	396	93	6	71	21	2	1.075	1.5	1	0	0	0	7	20	3.0	1.5	LBR	G274-3	H094-3
SNOWDEN	364	411	89	11	83	5	0	1.076	1.0	0	0	0	0	0	20	-	2.3	S		
MSJ319-1 *	356	458	78	22	73	4	1	1.084	1.0	0	0	0	0	0	20	0.5	2.8	LBR	B0718-3	W870
MSJ482-1	315	355	89	8	80	9	3	1.100	1.0	12	0	0	0	0	20	1.0	3.3	RS	ZAREVO	C127-3
MSK136-2 *	299	376	79	20	78	2	1	1.078	-	0	0	0	0	0	20	1.0	3.0	LBR	GRETA	B0718-3
MSJ334-1Y *	293	370	79	15	64	15	6	1.075	-	0	1	1	1	0	20	1.5	3.5	MR	D040-4	BRADOR
MSK101-2Y	247	304	81	14	80	2	5	1.072	1.5	0	0	0	0	0	20	1.5	1.5	LBR	F059-1	G274-3
MEAN	417	474						1.075												
LSD _{0.05}	99	106						0.003												

¹ SIZE: B: <2"; A: 2-3.25"; OV: >3.25"; PO: Pickouts.

² QUALITY: HH: Hollow Heart; BC: Brown Center; VD: Vascular Discoloration; IBS: Internal Brown Spot.

³ CHIP SCORE: Snack Food Association Scale (Out of the field); Ratings: 1-5; 1: Excellent, 5: Poor.

⁴ SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

⁵ MATURITY RATING: Taken September 4, 2001; Ratings 1-5; 1: Early (vines completely dead); 5: Late (vigorous vine, some flowering).

⁶ LATE BLIGHT RATING: Reaction to foliar *Phytophthora infestans*; LBR: Resistant; MR: Moderately Resistant; RS: Reduced Susceptibility; S: Susceptible.

Planted May 9, 2001 * These lines have also demonstrated tuber resistance to Late Blight in the laboratory.

Michigan Table 11. Scab disease trial. Scab nursery, East Lansing, MI.

Potato Line	Mean Rating * (0-5)	Worst Rating (0-5)	Reps	Potato Line	Mean Rating (0-5)	Worst Rating (0-5)	Reps	Potato Line	Mean Rating (0-5)	Worst Rating (0-5)	Reps
<i><u>RESISTANT CATEGORY:</u></i>				<i><u>RESISTANT CATEGORY:</u></i>				<i><u>MODERATELY RESISTANT CATEGORY:</u></i>			
A8893-1	0.0	0	3	CARIBE	0.5	1	2	B0766-3	1.0	1	6
AC87079-3RUS	0.0	0	3	COWHORN	0.5	1	2	MSB107-1	1.0	1	3
AC89536-5RD	0.0	0	3	MSJ319-1	0.5	1	2	CHERRY RED	1.0	1	2
BANNOCK RUSSET	0.0	0	2	MSK214-1R	0.5	1	2	CV89023-2	1.0	3	3
GOLDRUSH	0.0	0	3	VIKING PURPLE	0.5	1	2	MSG004-3	1.0	1	3
HUCKLEBERRY	0.0	0	2	SUPERIOR	0.6	1	9	MSG015-C	1.0	1	3
MN19525	0.0	0	2	AC87138-4RUS	0.7	1	3	MSG153-2Y	1.0	1	1
MSE192-8RUS	0.0	0	3	AF1758-7	0.7	1	3	GOLD NUGGET	1.0	1	3
MSG301-9	0.0	0	3	ATX85404-8W	0.7	2	3	MN18747	1.0	1	2
MSH228-6	0.0	0	3	DAKOTA PEARL	0.7	1	3	MSH098-2	1.0	2	3
MSI111-A	0.0	0	3	MSE080-4	0.7	1	3	MSI061-B	1.0	1	2
MSJ036-A	0.0	0	2	MSE221-1	0.7	1	3	MSJ031-6	1.0	1	2
MSNT-1	0.0	0	3	MSH095-4	0.7	1	3	MSJ033-10Y	1.0	2	3
RN-3	0.0	0	3	MSH120-1	0.7	2	3	MSJ080-1	1.0	2	2
RN-8	0.0	0	3	MSI004-3	0.7	1	3	MSJ080-8	1.0	1	3
RUSSET NORKOTAH	0.0	0	3	MSJ438-2	0.7	2	3	MSJ126-9	1.0	1	3
SILVERTON RUSSET	0.0	0	3	MSJ458-2	0.7	2	3	MSJ167-1	1.0	2	3
TXNS 112	0.0	0	2	MSK004-2Y	0.7	1	3	MSJ204-3	1.0	1	3
W1836-1	0.0	0	3	MSK247-9Y	0.7	1	3	MSJ316-AY	1.0	1	2
ARRON'S PILOT	0.3	1	3	ND5084-3R	0.7	1	3	MSJ456-4Y	1.0	1	1
CARIBE SPORT	0.3	1	3	NY112	0.7	2	3	MSJ461-1	1.0	2	3
LIBERATOR (MSA091-1	0.3	1	3	ROSE FINN APPLE	0.7	1	3	MSJ462-A	1.0	1	2
MSE202-3RUS	0.3	1	3	RUSSET BURBANK	0.7	1	3	MSJ482-1	1.0	1	2
MSF060-6	0.3	1	3	RUSSIAN BANANA	0.7	1	3	MSJ494-1	1.0	1	3
MSG227-2	0.3	1	3	ONAWAY	0.9	1	6	MSK070-2Y	1.0	1	2
MSH356-A	0.3	1	3					MSK136-2	1.0	1	2
MSJ465-6Y	0.3	1	3					MSK217-3P	1.0	1	2
MSK061-4	0.3	1	3					MSK476-1	1.0	2	3
NY120	0.3	1	6					MSK498-1Y	1.0	1	2
OZETTE	0.3	1	3					P83-11-5	1.0	1	3
TXNS 223	0.3	1	3					MSR4-2	1.0	1	1
W1876-1RUS	0.3	1	3					RED THUMB	1.0	1	3
								W1201	1.0	2	3
								W1431	1.0	2	5
								W1879-1	1.0	2	3

*SCAB DISEASE RATING: MSU Scab Nursery; 0: No Infection; 1: Low Infection <5%; 3: Intermediate; 5: Highly Susceptible.

Planted: May 3, 2001 Harvested: Aug. 31, 2001

Michigan Table 11. Continued.

Potato Line	Mean Rating (0-5)	Worst Rating (0-5)	Reps	Potato Line	Mean Rating (0-5)	Worst Rating (0-5)	Reps	Potato Line	Mean Rating (0-5)	Worst Rating (0-5)	Reps
<i>SUSCEPTIBLE CATEGORY:</i>				<i>SUSCEPTIBLE CATEGORY:</i>				<i>SUSCEPTIBLE CATEGORY:</i>			
W1386	1.3	3	9	A91790-13	2.0	3	3	A90586-11	2.5	4	6
AF1615-1	1.3	2	3	AC87340-2W	2.0	3	3	AF1424-7	2.5	4	2
CAPC10	1.3	2	3	AF1763-2	2.0	4	3	AF1775-2	2.5	4	2
CAPC25	1.3	2	3	AUSBURG GOLD	2.0	3	3	BLUE MAC	2.5	3	2
MSB106-7	1.3	2	3	BC0894-2W	2.0	4	3	MN19315	2.5	3	2
MSE149-5Y	1.3	2	3	BUTTERFINGER	2.0	3	3	MSJ042-3	2.5	3	2
MSF373-8	1.3	2	3	CAPC15	2.0	3	3	MSJ308-BY	2.5	3	2
MSH015-2	1.3	2	3	KERR'S PINK	2.0	2	2	MSK003-1Y	2.5	3	2
MSH026-3RUS	1.3	2	3	MICHIGAN PURPLE	2.0	3	3	NDTX4930-5W	2.6	4	3
MSH094-8	1.3	2	3	MSG147-3P	2.0	3	3	MSE228-1	2.7	3	3
MSJ047-5	1.3	2	3	MSH041-1	2.0	3	3	MSF099-3	2.7	3	3
W1355-1	1.3	2	3	MSH067-3	2.0	3	3	MSH018-5	2.7	3	3
MSI049-A	1.5	2	2	MSH360-1	2.0	3	3	MSH031-5	2.7	3	3
MSJ153-2Y	1.5	2	2	MSH370-3	2.0	2	3	MSI092-3RY	2.7	3	3
MSJ334-1Y	1.5	2	2	MSH380-3Y	2.0	3	3	MSI201-2PY	2.7	4	3
MSJ464-5	1.5	2	2	MSI005-20Y	2.0	3	3	MSJ132-1Y	2.7	4	3
MSJ482-2	1.5	2	2	MSJ049-1Y	2.0	3	3	MSJ197-1	2.7	3	3
MSK101-2	1.5	2	2	MSJ143-4	2.0	3	3	MSJ343-1	2.7	3	3
MSK193-1	1.5	2	2	MSJ147-1	2.0	3	3	MSJ456-2Y	2.7	3	3
MSK223-5	1.5	2	2	MSJ157-B	2.0	3	3	MSR3-110	2.7	4	3
MSK409-1	1.5	2	2	MSJ317-1	2.0	3	2	TORRIDON	2.7	3	3
PURPLE CHIEF	1.5	2	2	MSJ472-4P	2.0	3	3	C085026-4RD	3.0	4	3
PURPLE PERUVIAN	1.5	3	2	MSK034-1	2.0	2	2	CAROLA	3.0	5	2
A90490-1	1.7	3	3	MSK244-6	2.0	3	3	CATRIONA	3.0	4	3
ANOKA	1.7	2	3	MSK410-2Y	2.0	3	2	MSF099-3	3.0	4	3
EVA	1.7	2	3	MSK438-4	2.0	3	3	MSH217-1	3.0	4	3
FRENCH FINGERLING	1.7	2	3	MSK469-1	2.0	3	3	MSI032-6	3.0	3	3
GERMAN BUTTERBALL	1.7	3	3	RED PONTIAC	2.0	3	2	MSI037-4	3.0	4	3
MSF313-3	1.7	3	3	RHINE GOLD	2.0	2	2	MSI077-5	3.0	4	3
MSH017-C	1.7	2	3	V0299-4	2.0	3	3	MSJ142-3	3.0	3	1
MSH063-1	1.7	3	3	CAPC20	2.3	3	3	MSJ459-4	3.0	3	2
MSI026-A	1.7	3	3	JACQUELINE LEE (MSG274-3)	2.3	3	3	MSK128-1	3.0	3	2
MSI152-A	1.7	3	3	MSE018-1	2.3	3	3	PURPLE #5	3.0	3	2
MSI537-3	1.7	2	3	MSI083-5	2.3	3	3	A92584-3BB	3.3	5	3
MSJ168-2Y	1.7	2	3	MSI582-A	2.3	3	3	ALL BLUE	3.3	5	3
MSJ170-4	1.7	3	3	MSJ163-7R	2.3	3	3	MSI085-10	3.3	4	3
MSJ307-2	1.7	3	3	MSJ430-6Y	2.3	3	3	MSR3-105	3.3	5	3
MSJ319-7	1.7	2	3	MSJ453-4Y	2.3	3	3	MSH308-2Y	3.5	4	2
MSJ457-2	1.7	3	3	MSK039-3	2.3	3	3	MSH333-3	3.7	4	3
MSK219-8RY	1.7	2	3	MSK068-2	2.3	3	3	V0123-25	3.7	5	3
MSK236-5	1.7	2	3	MSR6-2	2.3	3	3				
MSK418-1	1.7	4	3	V0168-3	2.3	3	3				
SAGINAW GOLD	1.7	2	3	YUKON GOLD	2.3	3	3				
ATLANTIC	1.8	3	8								

*SCAB DISEASE RATING: MSU Scab Nursery, 0: No Infection, 1: Low Infection <5%, 3: Intermediate, 5: Highly Susceptible.

Michigan Table 12. Late blight variety trial. Muck Soils Research Farm.

RAUDPC ¹			RAUDPC ¹		
LINE	N	MEAN	LINE	N	MEAN
<i>Foliar Resistance Category:</i>			<i>Foliar Susceptibility Category (select lines):</i>		
LBR9	3	0.0	WTS1221-1	3	13.3
LBR8	2	0.0	YUKON GOLD	2	13.6
WTS1212-1	3	0.1	SNOWDEN	3	16.0
B0767-2	3	0.1	BANNOCK RUSSET	3	16.3
WTS1212-6	3	0.2	EVA (NY103)	2	16.8
MSJ461-1	3	0.2	WTS1212-7	1	17.6
MSJ457-2	2	0.2	KEUKA GOLD (NY101)	3	18.0
MSJ459-4	3	0.3	KEYSTONE RUSSET	3	18.9
WTS1217-7	3	0.3	SILVERTON RUSSET	3	19.8
MSJ453-4Y	3	0.4	WTS1212-2	3	23.7
AWN86514-2	3	0.4	RUSSET BURBANK	5	24.4
MSJ456-4Y	3	0.4	RUSSET GEM	2	24.4
TORRIDON	3	0.4	RUSSET NORKOTAH	6	24.6
MSJ464-5	3	0.5	WWW297	3	24.9
WTS1217-4	3	0.6	ATLANTIC	6	24.9
JACQUELINE LEE	3	0.7	SUPERIOR	6	25.2
A90586-11	6	0.7	SHEPODY	1	25.3
B0718-3	3	0.8	CACP10	3	26.4
WTS1216-4	3	0.8	CACP20	3	27.6
B0692-4	3	1.0	RANGER RUSSET	2	27.7
MSK136-2	3	1.2	CACP15	3	27.9
MSJ317-1	2	1.5	CACP25	3	28.3
MSJ319-1	3	1.5	RED LASODA	2	30.0
MSJ343-1	3	1.6	DARK RED NORLAND	2	30.1
MSK128-1	2	1.6	ONAWAY	3	31.0
WTS1217-3	3	1.7	MICHIGAN PURPLE	3	36.0
MSJ307-2	2	1.7			
MSJ319-7	3	1.9			
MSI152-A	3	2.0			
MSJ458-2	2	2.1			
MSK101-2	2	2.3			
MSJ456-2Y	3	2.7			
MSJ031-6	3	5.1			
MSK034-1	3	6.2			
MSJ334-1Y	2	6.2			

¹ Ratings indicate the RAUDPC (Relative Area Under the Disease Progress Curve) over the entire plot.

² Over 200 varieties and breeding lines were tested in all. For brevity purposes, only selected varieties and breeding lines are listed. Varieties and breeding lines with a mean RAUDPC value of 7.0 and less are considered resistant in 2001.

Phytophthora infestans isolates 94-3, 95-7, 98-2, 00-1 inoculated 28 July 2001.

Planted as a randomized complete block design consisting of 3 replications of 4 hill plots on 14 June 2001.

Michigan Table 13. Blackspot bruise susceptibility test.

VARIETY	Simulated*		Check**	
	PERCENT (%)		PERCENT (%)	
	BRUISE FREE	AVERAGE SPOTS/TUBER	BRUISE FREE	AVERAGE SPOTS/TUBER
<u>ROUND WHITES: CHIP</u>				
MSH098-2	100	0.00	100	0.00
MSH067-3	92	0.08	100	0.00
MSI032-6	80	0.20	100	0.00
P83-11-5	80	0.24		
DAKOTA PEARL	72	0.32	96	0.04
MSG227-2	64	0.48	100	0.00
MSH094-8	60	0.52	100	0.00
PIKE	68	0.52	88	0.12
MSA091-1	52	0.60		
MSF099-3	60	0.60	100	0.00
MSJ461-1	52	0.60	100	0.00
NY120	52	0.68	100	0.00
SNOWDEN	36	1.04	92	0.08
W1386	36	1.04	92	0.08
ATLANTIC	20	1.12	80	0.20
MSG015-C	28	2.04	68	0.44
MSH095-4	16	2.28	100	0.00
<u>ROUND WHITES: TABLE</u>				
MSH031-5	92	0.08	100	0.00
EVA	84	0.16	100	0.00
SUPERIOR	76	0.28	88	0.12
MSE149-5Y	72	0.32	96	0.04
MICHIGAN PURPLE	64	0.40	96	0.04
ONAWAY	72	0.40	100	0.00
MSF373-8	64	0.56	92	0.08
MSF313-3	64	0.60	100	0.00
MSE221-1	52	0.64	92	0.08
MSG004-3	60	0.64	88	0.12
MSB107-1	44	0.92	92	0.08
MSE018-1	24	1.28	100	0.00
JACQUELINE LEE	20	1.80	84	0.16
MSF060-6	12	1.88	52	0.48

VARIETY	PERCENT (%)		PERCENT (%)	
	BRUISE FREE	AVERAGE SPOTS/TUBER	BRUISE FREE	AVERAGE SPOTS/TUBER
<u>LONG WHITES and RUSSETS</u>				
W1876-1	92	0.08	100	0.00
MSE202-3RUS	88	0.12	100	0.00
MSH026-3RUS	88	0.12		
ATX85404-8W	88	0.16	100	0.00
BANNOCK RUSSET	84	0.20	96	0.04
AC87079-3	76	0.24	96	0.04
AC89536-5	84	0.24	92	0.12
GOLDRUSH	80	0.24	96	0.04
TXNS112	80	0.24	96	0.04
MSE192-8RUS	72	0.28	100	0.00
C085026-4	68	0.32	96	0.04
RUSSET NORKOTAH 3	72	0.32	100	0.00
TXNS278	76	0.32	100	0.00
RUSSET NORKOTAH	76	0.40	100	0.00
W1879-1	68	0.40	100	0.00
AC87138-4	68	0.44	100	0.00
TXNS223	72	0.44	100	0.00
RUSSET NORKOTAH 8	56	0.48	96	0.04
SILVERTON RUSSET	64	0.52	92	0.08
A8893-1	60	0.56	92	0.12
A90586-11	64	0.56	96	0.04
NDTX4930-5W	52	0.60	88	0.12
RUSSET BURBANK	48	0.88	84	0.16
MSB106-7	40	1.16	60	0.76
<u>NORTH CENTRAL REGIONAL TRIAL</u>				
D.R. NORLAND	100	0.00	100	0.00
W1431	92	0.08	100	0.00
MSF099-3	84	0.16	100	0.00
ND5084-3R	88	0.16	96	0.04
DAKOTA ROSE	84	0.20	100	0.00
MN19315	76	0.24	92	0.08
MSE192-8RUS	80	0.24	100	0.00
CV89023-2	72	0.28	96	0.04
MN19525R	68	0.36	92	0.08
MSF373-8	68	0.36	84	0.24
V0168-3	76	0.36	92	0.08
RED PONTIAC	68	0.40	100	0.00
A90586-11	60	0.44	96	0.04
ATLANTIC	68	0.44	88	0.12

VARIETY	PERCENT (%)		PERCENT (%)	
	BRUISE FREE	AVERAGE SPOTS/TUBER	BRUISE FREE	AVERAGE SPOTS/TUBER
ND3196-1R			100	0.00
RUSSET NORKOTAH	60	0.44	100	0.00
V0123-25	64	0.48	68	0.36
MN18747	52	0.56	72	0.40
MN19157	56	0.56	76	0.24
V0299-4	56	0.60	84	0.16
MICHIGAN PURPLE	48	0.64	96	0.04
W1201	68	0.64	96	0.08
SNOWDEN	40	0.92	88	0.12
W1386	36	0.92	100	0.00
B0766-3	36	0.96	80	0.20
NY112	40	0.96	88	0.20
W1836-1RUS	24	1.08	88	0.12
NORVALLEY	36	1.12	92	0.08
RUSSET BURBANK	16	1.64	96	0.04
<u>YELLOW FLESH and EUROPEAN TRIAL</u>				
MSG147-3P	88	0.12	100	0.00
MSI005-20Y			100	0.00
MSJ472-4P	80	0.20	96	0.04
YUKON GOLD	76	0.28	100	0.00
MSJ033-6Y	76	0.32	100	0.00
MSJ033-10Y	64	0.48	96	0.04
TORRIDON	48	0.68	88	0.12
MSH380-3Y	52	0.76	92	0.08
MSI092-3RY	40	0.88	100	0.00
SAGINAW GOLD	44	0.88	76	0.28
MSJ456-2Y	32	1.16	84	0.20
MSJ453-4Y	16	1.32	96	0.04
<u>ADAPTATION TRIAL</u>				
MSJ042-3	100	0.00		
AF1758-7	92	0.08	92	0.08
BC0894-2	96	0.08	100	0.00
MSJ126-9	92	0.08	92	0.08
A91790-13	88	0.12	100	0.00
AC87340-2	88	0.12	100	0.00
AF1763-2	88	0.12	100	0.00
MSH120-1	88	0.12	100	0.00
MSH370-3	84	0.16	100	0.00
A92584-3BB	84	0.20	100	0.00
MSJ307-2			100	0.00

VARIETY	PERCENT (%)		PERCENT (%)	
	BRUISE FREE	AVERAGE SPOTS/TUBER	BRUISE FREE	AVERAGE SPOTS/TUBER
MSI537-3			96	0.04
MSG301-9	84	0.20	100	0.00
MSI077-5	80	0.20	100	0.00
MSJ319-7	84	0.20	100	0.00
MSE080-4	80	0.24	96	0.04
SUPERIOR	80	0.24	96	0.04
MSH228-6	80	0.28	100	0.00
CACP15	72	0.32	100	0.00
MSH041-1	68	0.36	96	0.04
MSH360-1	72	0.36	96	0.04
ONAWAY	72	0.36	88	0.20
A90490-1	68	0.40	100	0.00
MSH015-2	60	0.40	100	0.00
MSI083-5	68	0.40	96	0.08
CACP25	68	0.44	100	0.00
MSH333-3	72	0.44	92	0.08
MSI582-A	72	0.44	88	0.12
CACP10	60	0.52	96	0.04
AF1615-1	60	0.56	92	0.08
MSH356-A	64	0.56		
MSI004-3	64	0.56	100	0.00
MSJ438-2	56	0.60	88	0.12
MSI037-4	56	0.68	88	0.12
MSI111-A	56	0.72	100	0.00
MSI085-10	52	0.76	88	0.12
CACP20	36	0.92	100	0.00
MSH017-C	40	1.00	88	0.12
SNOWDEN	36	1.04	96	0.04
ATLANTIC	36	1.36	96	0.04
<u>PRELIMINARY TRIAL</u>				
MSJ080-1	76	0.28	100	0.00
MSI049-A	68	0.36	88	0.12
MSJ204-3	64	0.48	100	0.00
MSJ319-1	60	0.48	100	0.00
MSI061-B	68	0.52	88	0.12
MSJ031-6	60	0.52		
MSK061-4	60	0.56	88	0.12
MSK125-3	52	0.60	100	0.00
MSJ047-5	56	0.64	92	0.08
MSJ080-8	44	0.64	100	0.00
MSJ456-4Y			88	0.12

VARIETY	PERCENT (%)		PERCENT (%)	
	BRUISE FREE	AVERAGE SPOTS/TUBER	BRUISE FREE	AVERAGE SPOTS/TUBER
MSJ168-2Y			96	0.04
MSJ143-4			84	0.24
MSJ036-A			72	0.36
MSJ163-7R	44	0.64	96	0.04
MSJ482-2	56	0.64	88	0.12
MSJ170-4	52	0.68	100	0.00
MSJ334-1Y *	48	0.72	88	0.12
MSK217-3P	52	0.72	84	0.16
MSJ197-1	40	0.76	88	0.12
MSJ147-1	44	0.80	84	0.24
ONAWAY	40	0.80	84	0.16
MSK034-1 *	44	0.88	92	0.08
MSK498-1Y	44	0.88	76	0.24
MSJ494-1	32	0.92	96	0.04
MSK136-2	32	1.04	88	0.12
MSJ157-B	28	1.08	88	0.12
MSK236-5	32	1.08	92	0.08
MSK476-1	32	1.08	96	0.04
MSK068-2	36	1.20	92	0.08
MSK214-1R	28	1.20	92	0.08
MSK409-1	20	1.24	96	0.04
MSI152-A *	28	1.32	96	0.04
MSJ482-1	24	1.32	96	0.04
MSK247-9Y	40	1.36	96	0.04
MSJ316-AY	20	1.48	100	0.00
MSI026-A	24	1.56	92	0.08
MSK469-1	12	1.60	92	0.08
MSJ317-1	24	1.64	92	0.08
MSK128-1	16	1.68	92	0.12
MSK410-2Y	20	1.68	76	0.28
MSJ456-4	20	1.88		
SNOWDEN	8	1.96	84	0.16
ATLANTIC	12	2.32	52	0.64
MSJ167-1	0	2.36	84	0.16
MSK101-2Y	4	2.88	80	0.20
MSK004-2Y	4	3.12	72	0.48
<u>SNACK FOOD ASSOCIATION TRIAL</u>				
B0766-3	76	0.24	88	0.12
NDTX4930-SW	56	0.60	84	0.16
NY120	56	0.60	76	0.36
AF1775-2	52	0.72	100	0.00

VARIETY	PERCENT (%)		PERCENT (%)	
	BRUISE FREE	AVERAGE SPOTS/TUBER	BRUISE FREE	AVERAGE SPOTS/TUBER
Liberator	44	1.00	60	0.52
ATLANTIC	40	1.28	88	0.16
SNOWDEN	28	1.44	88	0.12
<u>AGPase TRIAL</u>				
EAGP15	64	0.40	84	0.16
EAGP8	60	0.44	80	0.24
E149-5Y	64	0.56	96	0.04
EAGP20	44	0.88	80	0.24
EAGP3	24	2.44	56	0.64
EAGP9	16	2.56	44	1.08
EAGP4	8	3.24	32	0.96
EAGP24	16	3.28	48	0.72
ONAWAY	68	0.36	72	0.40
ONAGP2	20	1.76	20	1.72
ONAGP1	20	2.12	48	0.76
ONAGP3	8	3.76	36	1.48

* A-size tuber samples were collected at harvest, held at 50 F at least 12 hours, and placed in a six-sided plywood drum and rotated ten times to produce simulated bruising. Samples were abrasive-peeled and scored on October 29, 2001.

** Tuber samples were collected at harvest, graded, and held until evaluation. Samples were abrasive-peeled and scored on October 30, 2001.

Minnesota Potato Breeding and Genetics

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Program Objectives

1. Develop, evaluate and distribute potato (*Solanum tuberosum* Group Tuberosum L.) cultivars and germplasm that are genetically superior for yield, fresh and processing market quality, and disease resistance.
2. In collaboration with North Central and other potato breeding programs, characterize advanced breeding selections for adaptation, yield, quality and disease resistance in Minnesota.
3. Identify germplasm and incorporate into adapted cultivars host plant resistance to: (a) green peach aphids and Colorado potato beetle, (b) PVY and PLRV and (c) Verticillium wilt, common scab, and late blight.
4. Train graduate students in agricultural sciences with emphasis on plant breeding and genetics

Report Contents

This potato breeding and genetics report has two (2) major sections:

- I. Varietal breeding and development reporting clonal performance of MN seedlings.
- II. Germplasm enhancement, and related breeding and genetic activities performed by Graduate Research Assistants.
 - A. Hayes, R.J. Response from clonal selection of acceptably chipping genotypes during the first field year of a breeding program.
 - B. Posch, D.M. Early generation selection for resistance to *Phytophthora infestans*.
 - C. Dinu, I. Introgression of wild *Solanum* species germplasm with *P. infestans* resistance into cultivated potato gene pool using EBN manipulation and sexual crosses.
 - D. Mollov, D. Breeding for resistance to PVY and PLRV, and the identification of PVY

symptom-less clones in 4x and 2x populations

Cooperators:

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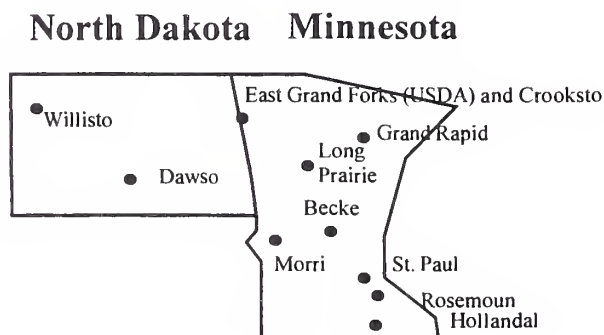
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Minnesota Agricultural Experiment Station: G. Cuomo, WCROC, Morris; G. Titrud, Sand Plains Research Farm, Becker; L. Smith, CROC, Crookston; D. Wallenbach, RROC, Rosemount; D. Wildung, NROC, Grand Rapids (Table 1 and Fig. 1).

Testing Locations

Figure 1. UMN potato breeding and genetics research trial locations.



At the West Central ROC, Morris, MN 8 acres of seed potatoes from 28-advanced, 25-intermediate, and 1097-early generation clones, and 665 selections

from graduate student research were grown. Trials were planted at 5 MN and 1 ND location. Disease resistance trials at the Rosemount, MN (RROC) included 253 clones for late blight, 182 for Colorado potato beetle, and 217 for PVY/PLRV expression. At the North Central ROC at Grand Rapids, MN there was a *Verticillium* wilt resistance trial with 212 clones; and 212 clones for scab resistance at the UMN Sand Plains Research Farm (Table 1 and Fig. 1).

Clonal Evaluations and Procedures

The 5 – stages that delineate the UMN potato breeding program (Table 2) are 1) new hybrid crossing and single-hill generation; 2) early clonal generations; 3) intermediate clonal generations; 4) advanced clonal generations; and 5) regional and national adaptation.

In 2001, 125 advanced, 28 intermediate and 64 early generation seedling clones were evaluated for horticultural, processing, and agronomic performance. The intermediate and early generation seedlings were also evaluated for disease / pest resistance.

Generating New Hybrid Progeny – This project produced over 1200 new hybrid cross combinations in 2001. Graduate students contributed another 700 crosses. Approximately 500 crosses are specific to varietal development and the 700 crosses toward germplasm enhancement exploiting wild species of potato, and other genetic and breeding studies being performed by graduate students in this program. Progeny from these crosses were grown in the St. Paul greenhouses, then in the single-hill field at Morris.

Greenhouse grown seedling tubers grown in excess of MN needs (i.e. B, C, and D-size tubers) were given to cooperating breeding programs in Michigan, Wisconsin, North Dakota, Texas, Colorado, and Oregon for selection and evaluation in their programs. Minnesota receives similar tubers from these programs and planted them as single-hills along side of our own production. In 2002, we plan to evaluate more than 100,000 new crosses using these seed sources. MN distributed seedling tubers of 410 different families to other breeding programs.

Yield, Grade and Quality Evaluations – Breeding selections advancing in our program were compared to commercial cultivars in field trials at irrigated and non-irrigated locations in Minnesota and North Dakota.

Typical yield, grade, and quality information were collected at harvest. These data include plant maturity, stand, total and US #1 marketable and size distribution yield, percentage of U.S. #1 yield and graded defect weights (malformed tubers, severe growth cracking, etc.), specific gravity, incidence and type of internal and external defects, and processing color. Then, evaluations for storability and chip and french fry processing were determined after 1-, 3-, and 6-months storage at 40 F. Red-skinned selections were evaluated for color and skin sloughing after harvest and storage. The best clones will be advanced.

UNIVERSITY OF MINNESOTA – Clonal Descriptions (Advanced Seedlings)

FRESH / RED

MN 17993 R – This clone has red color skin and white flesh. Its use is for fresh market, has excellent internal quality and has medium maturity. MN 17993 tubers are round to oval, uniform and smooth and distributed as approximately 5% <2oz., 40% 2-6oz., 50% 6-12oz., and 5% >12oz. Yields of MN 17993 are greater than Dark Red Norland and Red Pontiac both at early and late harvest and producing about 90 – 95 % US#1 tubers. MN 17993 skin color and texture is good and specific gravity is similar to Red Pontiac. It is susceptible to common scab, late blight, and *Verticillium* wilt, and expresses normal symptoms of PVY and PLRV infection.

PROCESSING

MN 15620 – This clone has red / pink color skin and yellow flesh. Its use is as a breeding line due to its resistance to PVY and PLRV, however, there is renewed interest in this clone for fresh market and/or french fry processing in domestic and South American markets. MN 15620 tubers are oval and smooth and distributed as approximately 10% <2oz., 65% 2-6oz., 20% 6-12oz., and 5% >12oz. Yields of MN 15620 are greater than Dark Red Norland and less than Red Pontiac and produce about 85-90% US#1 tubers. MN 15620 processing color is good and specific gravity is similar to Shepody. It appears resistant to PVY and PLRV infection.

MN 18747 – This clone has white skin and white flesh color and tubers that are oblong, smooth and attractive and having greater size and shape uniformity than Shepody. Its use is for early french fry processing since internal quality is superior to Shepody and this clone expresses normal symptoms of PVY and PLRV infection unlike Shepody. Tuber yield is 10% less than Shepody with 90-95% US#1 and distributed similar to Shepody as approximately

5% <2oz., 60% 2-6oz., 30% 6-12oz., and 5% >12oz. The specific gravity of MN 18747 is less than Shepody at about 1.075. It is susceptible to common scab, late blight, and *Verticillium* wilt, and expresses normal symptoms of PVY and PLRV infection.

CHIPS / FRESH

MN 19157 – This round white clone matures later than Atlantic and earlier than Norchip, yet yields greater than both with good market size. Tubers are round and uniform and have a specific gravity similar to NorValley. MN 19157 is targeted for the potato chipping market and has quality similar to NorValley directly from the field and after storage. It is susceptible to common scab, late blight, and *Verticillium* wilt, and expresses normal symptoms of PVY and PLRV infection.

MN 19315 – This clone is a round white chipping selection with white color flesh. Chip quality is excellent off the field and from 45 F storage with potential to chip directly from 42 F. Maturity of MN 19315 is later than Atlantic and NorValley, earlier than Snowden. Tuber yields are 10% less than Snowden with 85-95% US#1 and distributed as approximately 5% <1 7/8, 70% 1 7/8 – 2 1/4, 20% 2 1/4 - 3 1/2, ., and 5% >3 1/2. Specific gravity of MN 19315 is equal to Snowden. It is susceptible to common scab, late blight, and *Verticillium* wilt, and expresses normal symptoms of PVY and PLRV infection

MN 19515 – This clone is a round white chipping selection with white color flesh. Chip quality is excellent off the field and from 48 F storage with potential to chip directly from 45 F. MN 19515 has excellent internal quality and the maturity is like Atlantic and earlier than Snowden. Tuber yields are equal to or better than Atlantic early and greater than Snowden late with 90 - 93% US#1 and distributed as approximately 5% <1 7/8, 35% 1 7/8 – 2 1/4, 35% 2 1/4 - 3 1/2, and 25% >3 1/2. Specific gravity of MN 19515 is equal to Atlantic. It is susceptible to common scab, late blight, and *Verticillium* wilt, and may have field tolerance to PVY infection; it demonstrates normal symptom expression to PLRV infection.

QUICK SUMMARY

Among the advanced lines, **MN 15620** has field resistance to PVY/PLRV and has french fry market potential. The french fry lines **MN 18747** and **MN 18710**; fresh market red lines **MN 19525** and **MN 96013-1**; and chipping lines **MN 19157** and **MN 19315** are industry competitive and are being

increased for grower evaluations. Fifty-four advanced breeding clones from the US and Canada were grown at UM-Crookston, North West Research and Outreach Center (NWROC) to determine processing market potential after storage at 45F, 42F, and 38F for up to 7 mo. (USDA Potato Research Worksite). Clones demonstrated a diverse ability to accumulate sugars from starch after cold stress. Clones were categorized into 3-classes based on sugars and chip appearance: ability to process from 42F, from 45F, and from neither. Data are reported in the *Valley Potato Grower*.

Minnesota coordinated the NCR-84 potato cultivar trials at 11 sites. Advanced breeding lines were entered from MI-4, MN-4, ND-4, WI-5, ID-1, NY-1, USDA-2, and Alberta, Canada-4. These lines were also entered into disease screening nurseries in MN for determining resistance to common scab, *Verticillium* wilt, Late Blight, Colorado potato beetle, and expression of PVY/PLRV viruses. Minnesota breeders-class experimental seed potatoes are now being grown at UMN-Morris, West Central (WCROC). This location provides some isolation from traditional state potato production regions. This, and using better seed growing practices contributed to enhancing seed quality and reduced virus, potato virus Y (PVY) and leafroll (PLRV), inoculum in our breeding populations. An important trait for PVY susceptible clones is normal expression of virus symptoms because clones lacking this (symptom-less for PVY) are inoculum sources for disease spread. A PVY disease transmission and expression nursery was established at UMN-Rosemount (RROC). As part of the North Central (NCR-84) potato variety trials 30 advanced breeding lines from MI, MN, ND, WI, and Canada were infected with PVY, as were 54 advanced MN lines. Most lines expressed PVY and results are being confirmed using ELISA.

In a related study, of 129-4x and 90-2x clones sampled from crossing populations, 14% (4x), and 60% (2x) lacked PVY expression after positive ELISA confirmation. Crosses were made and 1254 progeny (4x and 2x) from 59 families selected to study the inheritance of non-expression of PVY. Moreover, 116 progeny from crosses with cv. Russet Norkotah (symptom-less for PVY) were made to determine the utility of breeding parents that lack PVY expression. Host plant resistance to viruses is found among the wild *Solanum* species. Three distinct breeding populations, one having 90 4x-clones (cultivars x (multiple interspecific hybrids)), the second and third an F2 haploid-species hybrid population ((H-S) x (H-S)) having 91 4x and 96 2x-clones, were screened for resistance (-) to PVY /

PLRV. Respectively, among the 4x 13(-,-), 55(-,+), 13(+,-), and 100(+,+); among the 2x 2(-,-), 4(-,+), 13(+,-), and 77(+,+) clones were found. These clones provide the base from which to study the transfer of host resistance to 4x progenies from 4x-4x, 4x-2x, and 2x-2x crosses. Furthermore, assessments on the effectiveness of host resistance on green peach aphid behavior during growth and development, as a means of limiting spread of PLRV / PVY in the field, can be made.

Introgressing wild potato species genes using 4x-2x and 2x-2x breeding strategies may increase the frequency of cold chipping (CC) 4x clones. Twenty 4x genotypes per family were grown from 90-TC (traditional cross, 4x-4x) with 39-EC (experimental cross, 2x-4x), 101-EC (4x-2x), and 121-EC 4x(2x-2x)-4x families. The EC populations that were developed by sexual polyploidization, had superior means and larger variances resulted in significantly more acceptable chipping progeny: 2x-4x (3mo: percent acceptable-15.4% and 6mo: 21.0%), 4x-2x (3mo: 10.7% and 6mo: 11.8%) and 4x(2x-2x)-4x (3mo: 7.6% and 6mo: 10.4%) compared to TC (3mo: 0.4% and 6mo: 0.6%). Performance of EC is likely due to introgression of CC alleles from species and potentially the superior transmission of CC through 2n gametes.

We are exploring new breeding methods to accelerate development for late blight (LB) resistance. Crosses were made between 4x-4x parents differing in their resistance (R) or susceptibility (S) to LB infection. Within a population of 5500 single-hill progeny planted in a LB nursery, 87 clonal selections from 26 families were advanced. Compared to Atzimba, a moderately-R cultivar, 75 clones had lower area under the disease progress curve (AUDPC) scores after 2-years of testing. Five clones had greater resistance than B 0718-3, a resistant USDA clone. Clonal yields were highly variable. Using yield and AUDPC values, an index was derived to give a numeric value for selection purposes and clones with high index values have high yield and low AUDPC (resistance). Fifty of the original selections have index values greater than commercial cultivars. We estimate that selecting for LB resistance earlier in breeding gave 48% greater progress toward resistance compared to traditional breeding methods; however, yield was a limiting factor in subsequent evaluations.

Minnesota Table A. Location, planting, vine kill (Days after planting, DAP), and harvest (DAP) dates of MN research trial at irrigated and non-irrigated locations.

Location	Irrigation	Planted	Kill DAP	Harvest DAP
Morris, MN	Non irrigated	17-May	90	110
Morris, MN Seedlings	Irrigated	24-May	120	130
Becker, MN				
Early	Irrigated	11-May	100	115
Late	Irrigated	11-May	120	130
Crookston, MN	Non irrigated	15-May	Water, No data	
Hollandale, MN	Non irrigated	9-Jun		
Williston, ND	Irrigated	7-May	130	140
Late Blight – Rosemount, MN	Irrigated	15-Jun		100
C. Scab – Becker, MN	Irrigated	25-May		120
Vert - Grand Rapids, MN	Non irrigated			
Vert - Grand Forks, ND	Non irrigated			
CPB – Rosemount, MN	Non irrigated	1-Jun		
Expr - PLRV / PVY – Rosemount, MN	Non irrigated	1-Jun		120

Minnesota Table B. Number of MN Clonal selections and cultivars at replicated yield trial and disease resistance trial locations.

Clonal Market type	Number of MN Clonal selections and cultivars					Total
	Stages of development ¹			Checks		
	Advanced	Intermediate	Early			
Red	12	7	14	2	D.R. Norland, R. Pontiac	35
Yellow flesh	4	4	12	1	Penta	21
Long white and Long red processing	5	2	9	1	Shepody	17
Russet processing	14	2	3	3	R. Burbank, R.Norkotah, Umatilla	22
Chipping	9	13	26	3	Atlantic, NorValley, Snowden	51
NCR – 84 Regional trial	23			7	D.R. Norland, R. Pontiac R. Burbank, R.Norkotah Atlantic, NorValley, Snowden	30
Quad – State trial	17					17
National late blight trial	41					41
Sub Total	125	28	64	17		193
New hybrid generation (Single-hills, not replicated)			110,000			110,000
Other Early generation (not in replicated trials)			381			381

^{1/} Stage of development time (years) from the initial hybrid cross, Advanced (8-10); Intermediate (5-8); Early (3-5).

Minnesota Table 1. Trial site locations for yield and pest and disease resistance of MN selections, cultivars, and selected clones from other breeding programs.

Clone	Female	Male	Research Trial Locations ^{1,2}															Stage ³				
			Color		Yield, Grade, Quality					Pest / Disease Expression					CB			V				
					M	BE	BL	CR	H	W	W	LB	CS	VG						VF		
RED SELECTIONS																						
D.R. Norland	ND 626	RedKote	Red	W		x	x	x	x	x	x	x	x	x	x	x	x	x	A			
MN 17922 R	ND 1871-3	MN 1.80-11	Red	W	x	x	x	x	x	x	x	x	x	x	x	x	x	x	A			
MN 17989 R			Red	W	x	x					x	x	x	x	x	x	x	x	A			
MN 17993 R	MN 1.80-11	Erik	Red	W	x	x	x	x	x	x	x	x	x	x	x	x	x	x	A			
MN 19055 R	MN 169.86-5 (MN 15622)	MN 3007.92-1 (MN 85685)	Red	W	x	x	x	x	x	x	x	x	x	x	x	x	x	x	A			
MN 19298 R			Red	Yel	x	x	x	x	x	x	x	x	x	x	x	x	x	x	A			
MN 19525 R	LA 1259	MN 25.80-6 (MN 13035)	Red	W	x	x					x	x	x	x	x	x	x	x	A			
MN 96013-1 R	MN 169.86-5 (MN 15622)	ND 2050-1	Red	Yel-dk	x	x	x	x	x	x	x	x	x	x	x	x	x	x	A			
MN 96040-7 R	MN 24.90-3 (MN 17590)	ND 3595-17	Red	W	x	x	x	x	x	x	x	x	x	x	x	x	x	x	A			
MN 96072-4 R	84505	ND 2225-1	Red	W	x	x	x	x	x	x	x	x	x	x	x	x	x	x	A			
MN 96074-3 R	84505	ND 3595-17	Red	W	x	x	x	x	x	x	x	x	x	x	x	x	x	x	A			
MN 97049-2 R	17300	17572	Red	W	x	x	x	x				x	x	x	x	x	x		I			
MN 98020-1 R	AWN86514-2	Red Ruby	Red	W	x	x						x	x	x	x	x	x		I			
MN 98125-1 R	ND2050-1R	17890	Red	W	x	x													I			
MN 98130-1 R	ND2225-1R	17578	Red	W	x	x	x	x				x	x	x	x	x	x		I			
MN 98187-1 R	18017	17572	Red	W	x	x	x	x				x	x	x	x	x	x		I			
MN 98198-1 R	85375	Red Ruby	Pur	W	x	x	x	x				x	x	x	x	x	x		I			
MN 98200-2 R	85375	ND2225-1	Red	Red	x	x	x	x				x	x	x	x	x	x		I			
MN 99052-1 R	Cherry Red	CO 95109-109	Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99052-2 R	Cherry Red	CO 95109-109	Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99084-1 R	Greta	MN 17922	Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99434-2 R	ND 3901-3	ND 2676-10	Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99435-1 R	ND 4038-1	ND 860-2	Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99441-2 R	NY 102	NY 115	Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99446-2 R	W 1360	S 440	Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99453-1 R	C 148A	W 887	Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99460-14 R	OP Chipping		Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99460-15 R	OP Chipping		Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99460-22 R	OP Chipping		Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99460-23 R	OP Chipping		Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99460-32 R	OP Chipping		Red	W	x	x	x	x				x	x	x	x	x	x		E			
MN 99460-9 R	OP Chipping		Red	W	x	x	x	x				x	x	x	x	x	x		E			
NDTX 4271-5 R	NDTX 9-1068-11 R	ND 2050-1 R	Red	W			x	x				x	x	x	x	x	x		A			
NDTX 4304-1 R	ND 1562-4 R	NDTX 1098-11 R	Red	W			x	x				x	x	x	x	x	x		A			
R. Pontiac			Red	W			x	x	x	x	x	x	x	x	x	x	x		A			

Minnesota Table 1. Trial site locations for yield and pest and disease resistance of MN selections, cultivars, and selected clones from other breeding programs.

Minnesota Table 1: Trial Site Locations for grow time and disease resistance	Research Trial Locations ^{1,2}																			
	Clone	Female	Male	Color		Yield, Grade, Quality							Pest / Disease Expression							
						M	BE	BL	CR	H	W	W	LB	CS	VG	VF	CB	V	Stage ³	
				Skin	Flesh															
LONG WHITE and LONG RED PROCESSING SELECTIONS																				
MN 15620	MN 1006.81-4	MN 5.80-12	Or / Pk	Yel		x	x	x	x	x	x	x	x	x	x	x	x	x	x	A
MN 18747	ND 2264-7	MN 47.82-6 (MN 14489)	LW	W		x	x	x	x	x	x	x	x	x	x	x	x	x	x	A
MN 19470			LW	W		x	x	x	x	x	x	x	x	x	x	x	x	x	x	A
MN 96001-2	MN 169.86-2 (MN 15620)	85345	LR	Yel		x	x	x	x	x	x	x	x	x	x	x	x	x	x	A
MN 96010-3	MN 169.86-3 (MN15620)	ND 3595-17	LR	Yel		x	x	x	x	x	x	x	x	x	x	x	x	x	x	A
MN 97031-5	16191	85952	LW	Yel		x	x	x	x				x	x	x	x	x			I
MN 98114-1	Krantz	85554	LW	W		x	x	x	x				x	x	x	x	x			I
MN 99089-2	Krantz	Eide	LW	W		x	x	x	x				x	x	x	x	x			E
MN 99094-1		ND 5104-1	LW	W		x	x	x	x				x	x	x	x	x			E
MN 99106-1	MN 16478	MN 18713	LW	W		x	x	x	x				x	x	x	x	x			E
MN 99106-2	MN 16478	MN 18713	LW	W		x	x						x	x	x	x	x			E
MN 99387-1	Chipeta	Zerrevo	LW	W		x	x	x	x				x	x	x	x	x			E
MN 99430-1	ND 2417-6	ND 3929-6	LW	W		x	x	x	x				x	x	x	x	x			E
MN 99460-16	Unknown	Composite chippers	LW	W		x	x	x	x				x	x	x	x	x			E
MN 99460-20	Unknown	Composite chippers	LW	W		x	x	x	x				x	x	x	x	x			E
MN 99460-21	Unknown	Composite chippers	LW	W		x	x	x	x				x	x	x	x	x			E
Shepody			LW	W			x	x	x	x	x	x	x	x	x	x	x	x	x	A

Minnesota Table 1. Trial site locations for yield and pest and disease resistance of MN selections, cultivars, and selected clones from other breeding programs.

Clone	Female	Male	Research Trial Locations ^{1,2}															Stage ³
			Color		Yield, Grade, Quality					Pest / Disease Expression								
					M	BE	BL	CR	H	W	W	LB	CS	VG	VF	CB	V	
RUSSET PROCESSING SELECTIONS																		
A 82360-7			Rus	W			x	x		x		x	x	x	x	x	A	
A 8893-1	A 7816-14	NorKing Russet	Rus	W			x	x		x		x	x	x	x	x	A	
ATX 84378-6 Ru			LW	W			x	x				x	x	x	x	x	A	
ATX 84706-2 Ru			Rus	W			x	x				x	x	x	x	x	A	
COMN 98650-8	A 79141-3	AC 87084-3	Rus	W		x		x				x	x	x	x	x	I	
MN 18153			Rus	W		x	x	x	x	x		x	x	x	x	x	A	
MN 18710			Rus	W		x	x	x	x	x		x	x	x	x	x	A	
MN 18713	AC 91.9	MN 47.82-6 (MN 14489)	Rus	W		x	x	x	x	x		x	x	x	x	x	A	
MN 97043-2	16478	18096	Rus	W		x		x				x	x	x	x	x	I	
MN 99352-3	W 1151	ND 5104-1	Rus	W		x		x				x	x	x	x	x	E	
MN 99429-1	ND 2382-15	ND 860-2	Rus	W		x		x				x	x	x	x	x	E	
MN 99460-1	Unknown	Composite chippers	Rus	W		x		x	x			x	x	x	x	x	E	
R. Burbank			Rus	W			x	x	x	x	x	x	x	x	x	x	A	
R. Norkotah	ND 9526-4 RUS	ND 9687-5 RUS	Rus	W			x	x	x	x		x	x	x	x	x	A	
TX 1385-12 Ru			Rus	W			x	x				x	x	x	x	x	A	
TX 1523-1 Ru/Y			Rus	Yel			x	x				x	x	x	x	x	A	
TXNS 102	Russet Norkotah		Rus	W			x	x				x	x	x	x	x	A	
TXNS 112	Russet Norkotah		Rus	W			x	x				x	x	x	x	x	A	
TXNS 223	Russet Norkotah		Rus	W			x	x				x	x	x	x	x	A	
TXNS 278	Russet Norkotah		Rus	W			x	x				x	x	x	x	x	A	
TXNS 296	Russet Norkotah		Rus	W			x	x				x	x	x	x	x	A	
Umatilla	A 79141-3	AC 87084-3	Rus	W			x	x	x	x		x	x	x	x	x	A	

Minnesota Table 1. Trial site locations for yield and pest and disease resistance of MN selections, cultivars, and selected clones from other breeding programs.

Clone	Female	Male	Research Trial Locations ^{1,2}															Stage ³
			Color		Yield, Grade, Quality					Pest / Disease Expression								
					M	BE	BL	CR	H	W	W	LB	CS	VG	VF	CB	V	
CHIPPING SELECTIONS																		
Atlantic	Wauseon	B 5141-6 (Lenape)	W	W		x	x	x	x	x		x	x	x	x	x	x	A
	COMN 98653-2	A 82360-7	W	W	x							x	x	x	x	x		I
MN 19157	MN 169-86-2 (MN 15620)	AC 92182 (MN 17873)	W	W		x	x	x	x	x		x	x	x	x	x	x	A
MN 19315	MN 644.87-5 (MN 15752)	MN 85892 (Composite)	W	W		x	x	x	x	x		x	x	x	x	x	x	A
MN 19343	MN 169.86-5 (MN 15622)	MN 3007.92-1 (MN 85685)	W	W		x	x	x				x	x	x	x	x	x	A
MN 19350	MN 623.87-1 (MN 16191)	MN 3002.92-3 (MN 85673)	W	W		x	x	x	x	x		x	x	x	x	x	x	A
MN 19515	AC 92187 (MN 17876)	MN 1012.85-16 (MN 16506)	W	W		x	x	x	x	x		x	x	x	x	x	x	A
MN 96041-1	AC 92119-18 (MN 17678)	82462	W	W		x	x	x	x	x		x	x	x	x	x	x	A
MN 97007-1	12823	85952	W	W								x	x	x	x			I
MN 97044-3	16478	85630	W	W		x	x	x	x			x	x	x	x	x		I
MN 97049-1	17300	17572	W	W		x		x	x			x	x	x	x	x		I
MN 97124-1	86100	86101	W	W		x		x	x			x	x	x	x	x		I
MN 97542-1	W870	BL 1-10	W	W								x	x	x	x	x		I
MN 98001-1	Atlantic	17678	W	W		x						x	x	x	x	x		I
MN 98001-4	Atlantic	17678	W	W		x	x	x	x			x	x	x	x	x		I
MN 98010-2	A79180-10	17742	W	W		x		x	x			x	x	x	x	x		I
MN 98011-2	A79180-10	17755	W	W		x		x	x			x	x	x	x	x		I
MN 98022-1	AWN86514-2	B0718-3	W	W								x	x	x	x	x		I
MN 98070-3	Cascade	17755	W	W		x		x	x			x	x	x	x	x		I
MN 98105-2	Krantz	Chipeta	W	W		x			x			x	x	x	x	x		I
MN 99042-1	Atlantic	Superior	W	W		x		x	x			x	x	x	x	x		E
MN 99120-1	MN 17922	ND 3196-1	W	W		x		x	x			x	x	x	x	x		E
MN 99150-1	MN 18001	ND 3574-5	W	W		x		x	x			x	x	x	x	x		E
MN 99158-1	MN 18370	ND 3574-5	W	W		x		x	x			x	x	x	x	x		E
MN 99185-2	MN 18714	Russet Norkotah	W	W		x		x	x			x	x	x	x	x		E
MN 99190-1	MN 18750	MN 18772	W	W		x		x	x			x	x	x	x	x		E
MN 99190-2	MN 18750	MN 18772	W	W		x		x	x			x	x	x	x	x		E
MN 99192-1	MN 18750	ND 2225-1	W	W		x		x	x			x	x	x	x	x		E
MN 99291-2	ND 3196-1	CO 95109-105	W	W		x		x	x			x	x	x	x	x		E
MN 99291-3	ND 3196-1	CO 95109-105	W	W		x		x	x			x	x	x	x	x		E
MN 99306-1	ND 4093-4	W 1151	W	W		x		x	x			x	x	x	x	x		E
MN 99325-2	Reddale	CO 95109-106	W	W		x		x	x			x	x	x	x	x		E
MN 99346-1	Superior	Zerrepo	W	W		x		x	x			x	x	x	x	x		E
MN 99352-2	W 1151	ND 5104-1	W	W		x		x	x			x	x	x	x	x		E

Minnesota Table 1. Trial site locations for yield and pest and disease resistance of MN selections, cultivars, and selected clones from other breeding programs.

Clone	Female	Male	Research Trial Locations ^{1,2}																	Stage ³
			Color		Yield, Grade, Quality								Pest / Disease Expression							
			Skin	Flesh	M	BE	BL	CR	H	W	W	LB	CS	VG	VF	CB	V			
MN 99364-1	Yukon Gold	Norwis	W	W	x	x	x								x	x	x	x	E	
MN 99367-1	Yukon Gold	Superior	W	W	x		x								x	x	x	x	E	
MN 99383-1	Cal White	Superior	W	W	x		x	x							x	x	x	x	E	
MN 99400-1	MN 85683	Chipeta	W	W	x		x	x							x	x	x	x	E	
MN 99408-1	MN 86128	Yukon Gold	W	W	x		x	x							x	x	x	x	E	
MN 99418-1	Norwis	Norchip	W	W	x		x	x							x	x	x	x	E	
MN 99432-1	ND 2470-27	ND 2676-10	W	W	x		x	x							x	x	x	x	E	
MN 99456-2	F 019-2	H 090-3	W	W	x		x	x							x	x	x	x	E	
MN 99460-44	Unknown	Composite chippers	W	W	x		x	x							x	x	x	x	E	
MN 99460-45	Unknown	Composite chippers	W	W	x		x	x							x	x	x	x	E	
MN 99460-46	Unknown	Composite chippers	W	W	x		x	x							x	x	x	x	E	
MN 99460-54	Unknown	Composite chippers	W	W	x		x	x							x	x	x	x	E	
ND 860-2 (8)			W	W											x	x	x	x	E	
NDTX 4930-5 W			W	W											x	x	x	x	A	
NDTX 85404-8 W			W	W											x	x	x	x	A	
NorValley			W	W											x	x	x	x	A	
Snowden	Wischip	B 5141-6 (Lenape)	W	W											x	x	x	x	A	

¹ Morris = M; BE = Becker Early (100 DAP); BL = Becker Late (145 DAP); CR = Crookston (120 DAP); H = Hollandale (120 DAP); W = Williston (140 DAP);

² LB = Late blight at Rosemount; CS = Common scab at Becker; VG = Verticillium wilt at Grand Rapids; VF = Verticillium wilt at Grand Forks; CB = Colorado potato beetle at Rosemount; V = PVY and PLRV virus at Rosemount.

³ A = Advanced; I = Intermediate; E = Early stages of development.

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

Total yield		Tubers / plant		U.S. No. 1 Yield		<2 oz.		Culls		Size Distribution (% of US No. 1 Yield)					Internal Defects (%) ²					Stage ³							
Loc ¹	(cwt/a)	(avg.)	(cwt/a)		%		%		%		2-4oz.		4-6oz.		6-8oz.		8-10oz.		>10oz.		Sp Gr	HH	IN	VD	BC	Total	Stage ³
RED SELECTIONS																											
D.R. Norland																											
	BE	426	9	411	96	4	0	0	14	25	22	20	16	1,054	0	0	0	0	0	0	0	0	0	0	0	0	A
	BE	426	9	413	97	3	0	0	16	32	22	18	9	1,050	0	5	35	0	40	1							I
	BL	399	9	373	94	6	0	0	16	24	22	12	20	1,049	0	0	5	0	5	A							A
	BL	477	14	440	92	8	0	0	33	29	15	8	6	1,054	0	0	0	0	0	E							E
	BL	544	12	516	95	5	0	0	16	17	17	18	26	1,053	0	0	0	0	0	I							I
	H	331	6	320	97	3	0	0	13	18	26	18	22		0	0	0	0	0	A							A
	W	355	7	350	99	1	0	0	12	28	29	15	14	1,063	0	0	0	0	0	A							A
MN 17922 R																											
	BE	407	8	399	98	2	0	0	13	23	21	18	23		0	0	0	0	0	A							A
	BL	802	11	502	63	1	36	0	4	8	10	7	33	1,052	0	0	5	0	5	A							A
	H	337	6	326	97	3	0	0	12	21	20	14	31		0	0	0	0	0	A							A
	W	485	8	476	98	2	0	0	6	15	22	22	33	1,069	0	0	0	0	0	A							A
MN 17989 R																											
	BL	593	9	468	79	2	19	0	8	8	11	10	42	1,070	5	0	0	0	5	A							A
	W	450	6	444	99	1	0	0	6	12	17	19	45	1,073	5	0	0	0	5	A							A
MN 17993 R																											
	BE	509	14	476	94	6	0	0	32	30	19	7	5		0	0	0	0	0	A							A
	BL	794	16	670	84	2	14	0	14	21	20	14	16	1,071	0	0	15	0	15	A							A
	H	355	9	336	95	5	0	0	26	28	17	8	16		0	0	0	0	0	A							A
	W	413	9	401	97	3	0	0	19	31	21	13	14	1,078	0	5	0	0	5	A							A
MN 19055 R																											
	BE	284	12	229	81	19	0	0	51	21	6	1	0	1,052	0	0	20	0	20	A							A
	BL	642	21	524	82	13	5	0	32	29	12	5	3	1,065	0	0	5	5	10	A							A
	H	283	11	223	79	21	0	0	30	24	14	7	4		0	0	0	0	0	A							A
	W	295	12	230	78	22	0	0	46	18	7	2	6	1,092	0	0	5	15	20	A							A
MN 19298 R																											
	BE	557	17	506	91	9	0	0	29	29	20	10	3	1,072	0	0	10	5	15	A							A
	BL	1073	25	802	75	4	21	0	17	19	15	11	13	1,064	0	0	5	5	10	A							A
	H	358	10	333	93	7	0	0	29	26	20	11	8		0	0	0	0	0	A							A
	W	370	10	352	95	5	0	0	35	30	17	6	8		0	0	0	0	0	A							A
MN 19525 R																											
	BL	747	18	647	87	5	8	0	23	23	22	8	11	1,069	0	0	10	0	10	A							A
	W	405	9	386	95	5	0	0	22	23	20	16	14	1,083	0	0	5	5	10	A							A

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

	Loc	Total yield (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz.		Culls %	Size Distribution (% of US No. 1 Yield)						Internal Defects (%)						Stage
				U.S. No. 1 Yield (cwt/a)	%	%	%		Size Distribution (% of US No. 1 Yield)				Sp Gr		HH	IN	VD	BC	Total		
									2-4oz.	4-6oz.	6-8oz.	8-10oz.	>10oz.	Sp Gr						HH	
MN 96013-1 R	BL	353	10	324	92	8	0	25	25	19	12	11	1,070	0	0	0	5	5	A		
	H	217	4	208	96	4	0	11	16	15	14	41	0	0	0	0	0	0	A		
	W	362	6	356	98	2	0	8	13	13	19	45	1,072	0	0	0	0	0	A		
MN 96040-7 R	BL	444	11	367	83	5	12	18	21	16	15	13	1,062	5	0	10	0	15	A		
	H	204	6	185	91	9	0	25	27	16	10	14	0	0	0	0	0	0	A		
	W	257	7	237	92	8	0	25	30	15	16	7	1,085	0	5	0	0	5	A		
MN 96072-4 R	BE	435	18	353	81	19	0	53	22	4	2	0	0	0	0	0	0	0	A		
	BL	522	18	455	87	13	0	38	28	16	4	1	1,063	5	0	10	15	30	A		
	H	271	10	231	85	15	0	42	26	9	5	4	0	0	0	0	0	0	A		
	W	362	12	320	88	12	0	43	32	8	5	1	1,112	0	0	0	0	0	A		
MN 96074-3 R	BL	633	10	517	82	2	17	9	13	17	13	30	1,050	0	0	0	25	25	A		
	H	295	5	282	96	4	0	10	14	15	14	42	0	0	0	0	0	0	A		
	W	339	6	331	98	2	0	14	18	21	16	28	1,061	0	0	5	0	5	A		
MN 97049-2 R	BE	317	10	289	91	9	0	42	32	14	2	2	1,059	0	0	35	0	35	I		
	BL	407	11	373	92	8	0	27	23	17	10	15	1,070	0	10	0	0	10	I		
MN 98020-1 R	BL	773	23	704	91	9	0	32	33	15	8	4	1,086	0	0	10	0	10	I		
MN 98125-1 R	BL	155	3	152	98	2	0	11	22	21	18	25	1,053	0	5	0	15	20	I		
MN 98130-1 R	BL	312	8	295	94	6	0	22	27	17	11	17	1,054	0	0	0	0	0	I		
MN 98187-1 R	BL	213	6	192	90	10	0	25	29	16	12	8	1,050	0	0	25	0	25	I		
MN 98198-1 R	BE	358	19	224	63	37	0	49	12	1	0	0	1,053	0	0	30	0	30	I		
	BL	601	24	495	82	18	0	47	23	8	3	2	1,050	15	0	5	0	20	I		
MN 98200-2 R	BE	355	13	295	83	17	0	36	25	15	3	4	1,050	0	0	30	0	30	I		
	BL	842	26	572	68	12	20	25	20	9	8	6	1,062	0	0	0	0	0	I		
MN 99052-1 R	BL	368	13	304	83	17	0	38	21	15	7	2	1,058	0	0	10	0	10	E		
MN 99052-2 R	BL	637	16	600	94	6	0	27	27	17	10	13	1,076	0	0	0	30	30	E		

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

	Loc	Total yield (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz.		Culls	Size Distribution (% of US No. 1 Yield)								Internal Defects (%)								Total	Stage
				U.S. No. 1 Yield (cwt/a)	%	%	%		2-4oz.		4-6oz.		6-8oz.		8-10oz.		>10oz.	Sp Gr	HH	IN	VD	BC				
									682	98	2	0	12	23	21	20							22	1.074		
MN 99084-1 R	BL	697	13	682	98	2	0	0	12	23	21	20	22	22	1.074	0	0	0	0	0	0	E		E		
MN 99434-2 R	BL	297	5	123	42	3	55	12	12	10	4	5	10	1.046	0	0	30	0	30	0	30	E	E			
MN 99435-1 R	BL	706	12	357	51	2	47	9	10	9	9	7	16	1.060	0	0	0	0	0	0	0	E	E			
MN 99441-2 R	BL	498	11	480	96	4	0	23	27	27	14	13	19	1.058	0	0	30	0	30	0	30	E	E			
MN 99446-2 R	BL	501	15	383	77	10	13	27	22	22	9	9	9	1.064	0	0	20	0	20	0	20	E	E			
MN 99453-1 R	BL	439	11	415	95	5	0	27	30	30	18	15	6	1.051	10	10	0	0	0	0	20	E	E			
MN 99460-14 R	BL	581	17	532	91	9	0	30	32	32	18	7	4	1.069	10	0	0	0	0	10	E	E				
MN 99460-15 R	BL	514	13	415	81	7	13	25	21	21	14	10	11	1.164	0	0	0	0	0	0	E	E				
MN 99460-22 R	BL	316	12	210	67	12	22	47	14	14	4	0	2	1.055	0	0	0	0	0	0	E	E				
MN 99460-23 R	BL	480	12	322	67	6	27	17	28	15	15	5	2	1.063	10	0	0	0	0	10	E	E				
MN 99460-32 R	BL	604	13	440	73	3	24	14	27	16	16	11	5	1.054	0	0	10	0	10	0	E	E				
MN 99460-9 R	BL	350	9	329	94	6	0	22	25	18	18	8	21	0.000	0	0	0	0	0	0	E	E				
NDTX 4271-5 R	BL	434	10	413	95	5	0	20	22	22	22	18	15	1.048	15	5	30	5	55	A	A					
NDTX 4304-1 R	BL	689	14	459	67	3	30	12	17	14	14	12	12	1.047	0	0	5	0	5	0	A	A				
R. Pontiac	BE	266	7	244	92	8	0	23	31	19	19	12	7	1.048	5	10	0	0	15	A	A					
	BE	253	7	232	92	8	0	24	25	16	16	14	13	1.057	5	5	10	0	20	I	I					
	BL	446	12	320	72	8	20	19	17	15	15	10	11	1.059	0	0	10	0	10	A	A					
	BL	516	12	481	93	7	0	21	23	17	17	12	21	1.062	0	0	20	0	20	E	E					
	BL	430	10	316	73	8	19	16	18	13	13	9	19	1.051	0	0	15	0	15	I	I					
	H	509	8	488	96	4	0	7	10	11	11	13	54	0	0	0	0	0	0	A	A					
	W	464	7	456	98	2	0	8	14	21	21	14	40	1.075	0	0	0	0	0	0	A	A				

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

Loc	Total yield (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield (cwt/a)	Yield %	<2 oz. %	Culls %	Size Distribution (% of US No. 1 Yield)					Internal Defects (%)					
							2-4oz.					Sp Gr					
							4-6oz.	6-8oz.	8-10oz.	>10oz.	HH	IN	VD	BC	Total	Stage	
YELLOW FLESH SELECTIONS																	
MN 19336	BE	332	12	272	82	18	0	35	27	11	5	3	1.070	0	0	0	A
	BL	598	19	515	86	14	0	30	23	13	6	14	1.086	0	0	0	A
	H	252	6	236	94	6	0	29	20	18	12	15	1.076	40	0	0	A
	W	466	7	460	99	1	0	10	13	15	14	47	1.101	0	0	0	A
MN 19484	BE	370	9	351	95	5	0	21	21	20	14	18	1.061	5	0	10	A
	BL	647	12	617	95	5	0	13	15	16	14	36	1.075	0	0	0	A
	H	406	8	392	97	3	0	16	13	17	9	41	1.065	0	0	0	A
	W	612	10	605	99	1	0	9	21	21	15	32	1.091	0	10	0	A
MN 96080-7	BE	430	17	361	84	16	0	48	26	7	3	0	1.080	0	0	10	A
	BL	673	20	620	92	8	0	35	28	18	8	3	1.083	0	0	20	A
	H	487	12	460	94	6	0	23	30	22	13	7	1.086	5	0	5	A
	W	319	8	309	97	3	0	28	31	16	10	11	1.101	0	5	5	A
MN 96099-3	BE	341	15	253	74	26	0	49	17	4	1	3	1.064	0	5	5	A
	BL	375	15	294	78	22	0	44	19	10	3	2	1.071	5	0	0	A
MN 97031-6	BE	288	16	182	63	37	0	47	13	3	0	0	1.061	0	0	0	I
	BL	430	17	349	81	19	0	43	23	10	2	3	1.079	0	0	40	I
MN 97047-1	BE	465	11	447	96	4	0	22	30	20	18	7	1.068	0	0	0	I
	BL	751	13	732	97	3	0	12	17	16	18	35	1.083	0	0	20	I
MN 98205-2	BL	634	16	581	92	8	0	21	22	19	13	16	1.068	0	0	45	I
MN 98207-1	BE	495	19	418	84	16	0	47	23	8	5	1	1.068	0	0	0	I
	BL	592	18	539	91	9	0	37	27	14	7	5	1.078	0	0	25	I
MN 99005-1	BL	564	18	492	87	13	0	32	21	15	10	9	1.048	0	0	20	E
MN 99074-2	BL	590	17	535	91	9	0	29	25	18	10	9	1.061	10	0	20	E
MN 99089-1	BL	180	5	162	90	10	0	27	13	16	24	9	1.062	0	0	0	E
MN 99144-1	BL	645	18	585	91	9	0	27	26	17	12	9	1.080	0	0	30	E

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

Loc	Total yield (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz.		Culls %	Size Distribution (% of US No. 1 Yield)					Internal Defects (%)					Total	Stage
			(cwt/a)	%	%	%		2-4oz.					Sp Gr	HH	IN	VD	BC		
								4-6oz.	6-8oz.	8-10oz.	>10oz.								
MN 99211-1	BL	742	24	656	88	12	0	40	27	14	4	4	1.077	0	0	10	0	10	E
MN 99320-1	BL	611	13	578	95	5	0	12	19	24	15	24	1.074	50	0	30	0	80	E
MN 99380-1	BL	704	19	637	91	9	0	24	26	18	9	14	1.076	0	0	10	0	10	E
MN 99421-1	BL	331	12	264	80	20	0	37	25	10	3	5	1.078	0	0	20	0	20	E
MN 99460-37	BL	283	10	243	86	14	0	35	32	11	4	3	1.087	0	0	0	0	0	E
MN 99460-38	BL	343	16	249	73	27	0	41	18	7	5	1	1.056	20	40	10	0	70	E
MN 99460-49	BL	668	17	633	95	5	0	24	30	21	11	10	1.071	0	0	10	0	10	E
MN 99460-55	BL	626	21	534	85	15	0	29	29	14	9	4	1.081	0	0	10	0	10	E
Penta	BE	405	13	363	90	10	0	41	29	12	4	4	1.054	0	0	0	0	0	A
	BE	358	13	315	88	12	0	45	30	9	2	1	1.058	0	0	0	0	0	I
	BL	587	16	552	94	6	0	32	32	13	8	8	1.068	0	0	10	0	10	A
	BL	545	15	509	93	7	0	31	28	16	8	8	1.064	0	0	35	0	35	I
	H	393	10	375	96	4	0	25	26	19	13	12	0	0	0	0	0	0	A
W	422	11	395	94	6	0	29	27	13	10	14	1.079	10	0	20	5	35	35	A

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

Loc	Total yield (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz.		Size Distribution (% of US No. 1 Yield)						Internal Defects (%)						Total	Stage
			(cwt/a)		%		2-4oz. 4-6oz. 6-8oz. 8-10oz. >10oz.						HH IN VD BC							
			%	%	%	%	%	%	%	%	%	%	%	%	%	%	%			
LONG WHITE and LONG RED PROCESSING SELECTIONS																				
MN 15620	BE	320	11	273	85	15	0	37	27	10	7	4	1.062	10	0	5	0	15	A	
	BL	350	13	286	82	18	0	39	21	12	6	5	1.067	0	0	25	0	25	A	
	H	331	7	317	96	4	0	18	21	15	14	29	1.073	0	0	5	0	5	A	
	W	471	8	462	98	2	0	11	19	22	14	32	1.091	0	0	0	0	0	A	
MN 18747	BE	330	6	323	98	2	0	15	23	17	14	30	1.056	0	0	0	0	0	A	
	BL	349	7	344	98	2	0	15	23	13	17	30	1.055	0	0	10	0	10	A	
	H	342	6	333	97	3	0	12	16	15	22	33	1.063	15	0	0	0	15	A	
	W	361	6	357	99	1	0	8	17	24	17	33	1.075	5	5	0	0	10	A	
MN 19470	BE	367	11	332	91	9	0	35	25	16	8	6	1.075	5	0	0	0	5	A	
	BL	637	13	614	96	4	0	15	22	22	12	26	1.087	15	5	20	15	55	A	
	H	337	7	327	97	3	0	20	16	19	23	19	1.086	0	0	0	0	0	A	
	W	427	8	413	97	3	0	17	20	13	11	36	1.098	0	0	0	0	0	A	
MN 96001-2	BL	327	8	314	96	4	0	27	26	23	10	10	1.064	5	0	0	0	5	A	
	W	189	5	178	94	6	0	34	36	14	4	6	1.082	0	0	0	0	0	A	
MN 96010-3	BE	399	20	258	65	35	0	47	14	2	1	1	1.055	0	0	0	0	0	A	
	BL	609	22	520	85	15	0	45	24	10	3	3	1.066	0	0	0	0	0	A	
	H	302	8	283	94	6	0	26	31	18	13	5	1.067	0	10	5	0	15	A	
	W	340	11	306	90	10	0	45	25	9	6	5	1.083	0	0	0	0	0	A	
MN 97031-5	BE	236	7	211	89	11	0	30	23	13	8	16	1.062	10	0	0	0	10	I	
	BL	455	9	435	96	4	0	15	25	16	16	24	1.081	15	0	0	0	15	I	
MN 98114-1	BE	306	9	282	92	8	0	31	34	14	10	3	1.075	0	5	0	0	5	I	
	BL	585	11	573	98	2	0	14	22	23	17	22	1.079	0	10	10	15	35	I	
MN 99089-2	BL	700	18	652	93	7	0	23	27	13	14	16	1.071	0	0	0	0	0	E	
MN 99094-1	BL	504	10	487	97	3	0	18	17	23	14	25	1.068	0	0	0	0	0	E	
MN 99106-1	BL	532	13	495	93	7	0	21	22	15	8	27	1.057	0	0	0	0	0	E	
MN 99106-2	BL	654	9	639	98	2	0	8	9	9	10	61	1.070	0	0	0	0	0	E	

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

Loc	Total yield / plant (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz.		Culls %	Size Distribution (% of US No. 1 Yield)					Internal Defects (%)					Stage		
			(cwt/a)	%	%	%		2-4oz. 4-6oz. 6-8oz. 8-10oz. >10oz.					Sp Gr HH IN VD BC Total							
							472	12	434	92	8	0	21	20	12	18	21	1,094	0	0	70	0	70	E
MN 99387-1	BL	472	12	434	92	8	0	0	21	20	12	18	21	1,094	0 <td>0<td>70</td><td>0<td>70</td><td>E</td></td></td>	0 <td>70</td> <td>0<td>70</td><td>E</td></td>	70	0 <td>70</td> <td>E</td>	70	E
MN 99430-1	BL	275	7	258	94	6	0	0	24	30	11	18	10	1,074	10	0	10	10	30	E
MN 99460-16	BL	460	9	416	90	4	6	6	14	23	21	16	17	1,054	20	0	0	0	20	E
MN 99460-20	BL	316	7	307	97	3	0	0	18	30	14	16	19	1,076	30	0	50	0	80	E
MN 99460-21	BL	545	9	471	86	3	11	3	8	10	13	14	41	1,074	10	0	10	0	20	E
Shepody	BE	202	6	180	89	11	0	0	31	32	13	4	8	1,065	0	0	0	0	0	A
	BE	182	5	166	91	9	0	0	31	31	15	9	6	1,071	0	0	5	0	5	I
	BL	741	12	573	77	3	20	3	10	15	9	12	32	1,072	5	5	20	0	30	A
	BL	790	12	578	73	3	24	3	7	12	10	9	36	1,077	0	0	10	0	10	E
	BL	687	11	673	98	2	0	0	11	16	17	15	40	1,073	10	0	5	0	15	I
	H	361	6	353	98	2	0	0	10	11	18	13	45	1,069	0	0	0	0	0	A
	W	417	4	416	100	0	0	0	3	5	9	9	74	1,077	0	0	0	0	0	A

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

	Loc	Total yield (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz.		Size Distribution (% of US No. 1 Yield)						Internal Defects (%)								
				U.S. No. 1 Yield		Culls		2-4oz.		4-6oz.		6-8oz.		8-10oz.		Sp Gr	HH	IN	VD	BC	Total	Stage
				(cwt/a)	%	%	%	%	%	%	%	%	%	%	%							
RUSSET PROCESSING SELECTIONS																						
A 82360-7	BL	547	16	503	92	8	0	31	26	17	8	10	1.059	5	0	10	0	15	A			
	W	336	5	331	99	1	0	5	18	12	10	54	1.083	10	0	0	0	10	A			
A 8893-1	BE	364	8	352	97	3	0	17	29	24	13	14	1.055	0	0	0	0	0	A			
	BL	580	9	492	85	2	13	8	13	14	14	36	1.073	5	0	20	0	25	A			
	W	475	6	471	99	1	0	4	8	12	15	61	1.084	35	0	0	0	35	A			
ATX 84378-6 Ru	BL	729	12	592	81	3	16	10	13	13	10	36	1.066	10	5	5	5	25	A			
ATX 84706-2 Ru	BL	517	5	511	99	1	0	2	6	7	9	74	1.067	10	0	20	0	30	A			
COMN 98650-8	BL	420	11	389	93	7	0	24	22	17	11	18	1.070	0	0	0	0	0	I			
MN 18153	BE	242	8	213	88	12	0	31	26	15	7	8	1.062	10	0	10	0	20	A			
	BL	563	11	540	96	4	0	16	18	19	15	28	1.066	5	0	0	0	5	A			
	H	188	5	175	93	7	0	23	24	13	15	18	1.043	25	0	0	0	25	A			
	W	346	4	341	99	1	0	6	9	10	12	62	1.082	0	0	0	5	5	A			
MN 18710	BE	229	8	198	87	13	0	48	16	13	6	5	1.063	5	0	10	0	15	A			
	BL	570	14	535	94	6	0	24	24	20	11	15	1.072	0	0	5	0	5	A			
	H	279	6	269	96	4	0	16	21	13	15	32	1.070	0	0	0	0	0	A			
	W	393	5	391	99	1	0	5	10	16	15	54	1.087	15	0	15	0	30	A			
MN 18713	BE	421	13	386	92	8	0	35	35	15	3	3	1.067	5	10	0	0	15	A			
	BL	527	14	493	94	6	0	27	30	17	9	10	1.060	0	5	10	0	15	A			
	H	323	8	302	93	7	0	19	22	19	7	27	1.068	25	0	0	0	25	A			
	W	355	11	328	92	8	0	40	31	12	4	5	1.089	0	0	0	0	0	A			
MN 97043-2	BL	300	6	288	96	4	0	13	14	16	13	40	1.081	0	0	10	0	10	I			
MN 99352-3	BL	615	11	597	97	3	0	12	15	13	15	41	1.081	0	0	30	0	30	E			
MN 99429-1	BL	714	14	687	96	4	0	13	17	20	18	29	1.065	0	0	10	0	10	E			
MN 99460-1	BL	547	10	532	97	3	0	15	19	11	13	38	1.062	0	0	0	0	0	E			

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

	Loc	Total yield (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz. %	Culls %	Size Distribution (% of US No. 1 Yield)					Internal Defects (%)					Total	Stage
				(cwt/a)	%			2-4oz.	4-6oz.	6-8oz.	8-10oz.	>10oz.	Sp Gr	HH	IN	VD	BC		
R. Burbank	BE	435	12	402	92	8	0	25	29	25	11	3	1.069	0	0	0	0	0	A
	BE	346	9	321	93	7	0	26	27	19	13	7	1.072	0	0	5	0	5	I
	BL	743	15	526	71	4	25	16	14	11	11	19	1.071	0	0	0	0	0	A
	BL	573	12	427	74	5	21	15	15	12	9	23	1.081	0	0	0	0	0	E
	BL	688	14	557	81	3	16	13	20	13	13	22	1.079	0	10	5	0	15	I
	H	337	8	322	95	5	0	17	27	19	12	21	1.068	25	5	10	0	40	A
	W	463	8	455	98	2	0	10	21	21	17	29	1.086	10	5	10	0	25	A
R. Norkotah	BE	444	8	433	97	3	0	13	20	18	14	32	1.064	0	0	0	0	0	A
	BE	425	9	415	98	2	0	13	25	28	11	21	1.061	0	0	5	0	5	I
	BL	624	10	569	91	2	6	10	15	15	12	40	1.061	0	0	5	0	5	A
	BL	654	9	643	98	2	0	5	10	14	16	53	1.065	10	0	0	0	10	E
	BL	723	9	717	99	1	0	6	10	11	14	59	1.062	0	0	10	0	10	I
	H	336	6	326	97	3	0	11	15	19	10	42	1.060	0	5	0	0	5	A
	W	395	7	387	98	2	0	11	21	23	14	29	1.077	0	0	0	5	5	A
TX 1385-12 Ru	BL	683	8	574	84	1	15	5	7	7	4	60	1.069	5	0	5	0	10	A
TX 1523-1 Ru/Y	BL	334	6	328	98	2	0	10	16	13	20	39	1.070	5	0	10	0	15	A
TXNS 102	BL	540	10	453	84	3	13	13	12	15	9	34	1.069	0	0	20	0	20	A
TXNS 112	BL	644	10	559	87	3	11	8	12	11	10	45	1.055	5	5	0	0	10	A
TXNS 223	BL	535	8	435	81	2	17	10	12	11	12	36	1.061	5	0	5	0	10	A
TXNS 278	BL	481	8	424	88	3	8	11	13	11	11	42	1.062	10	0	30	0	40	A
TXNS 296	BL	522	9	461	88	4	8	11	10	14	10	43	1.061	15	0	0	0	15	A
Umatilla	BE	474	9	461	97	3	0	15	23	20	12	26	1.072	0	5	10	0	15	A
	BL	789	11	663	84	1	15	7	11	12	11	43	1.082	25	0	0	0	25	A
	W	313	4	311	99	1	0	5	15	23	9	48	1.078	5	0	5	0	10	A

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

	Loc	Total yield (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz. %	Culls %	Size Distribution (% of US No. 1 Yield)					Internal Defects (%)																						
				U.S. No. 1 Yield (cwt/a)	%			2-4oz.		4-6oz.	6-8oz.	8-10oz.	>10oz.	Sp Gr	HH	IN	VD	BC	Total	Stage															
CHIPPING SELECTIONS																																			
Atlantic	BE	480	11	460	96	4	0	19	26	17	15	19	1,076	15	0	15	0	30	A																
	BE	329	7	316	96	4	0	16	21	21	18	21	1,074	10	10	10	5	35	I																
	BL	471	5	470	100	0	0	3	8	7	6	75	1,086	10	0	0	0	10	A																
	BL	661	10	650	98	2	0	10	13	15	16	44	1,078	0	0	30	0	30	E																
	BL	599	10	578	96	4	0	9	18	13	18	38	1,081	30	0	15	5	50	I																
MN 19157	H	432	8	417	96	4	0	10	17	16	10	43	1,078	20	0	0	0	20	A																
	W	361	7	354	98	2	0	11	26	20	12	30	1,082	5	0	5	0	10	A																
	BE	423	15	359	85	15	0	39	26	11	7	2	1,071	0	0	5	0	5	A																
	BL	414	15	348	84	16	0	36	23	13	6	7	1,072	5	0	10	0	15	A																
	H	380	9	352	93	7	0	21	24	18	12	17	1,075	10	0	0	0	10	A																
MN 19315	W	285	9	251	88	12	0	34	29	15	6	5	1,087	0	0	10	5	15	A																
	BL	378	14	312	82	18	0	39	24	12	5	3	1,079	0	0	0	0	0	A																
	W	390	13	341	87	13	0	40	24	10	6	6	1,097	10	0	0	0	10	A																
	BL	659	19	592	90	10	0	29	22	18	12	8	1,082	5	0	5	0	10	A																
	BE	415	9	396	95	5	0	18	21	22	15	19	1,068	0	0	0	0	0	A																
MN 19350	BL	571	9	564	99	1	0	10	14	18	18	38	1,072	5	0	15	0	20	A																
	H	283	5	277	98	2	0	9	12	25	19	32	1,079	0	0	0	0	0	A																
	W	334	7	328	98	2	0	20	26	23	13	16	1,089	0	0	0	0	0	A																
	BE	477	17	419	88	12	0	48	25	8	3	3	1,059	0	0	0	0	0	A																
	BL	512	16	462	90	10	0	38	24	14	7	6	1,073	10	0	5	0	15	A																
MN 19515	H	212	5	199	94	6	0	20	30	19	12	12	1,073	0	0	0	0	0	A																
	W	512	13	486	95	5	0	28	27	19	8	14	1,085	0	0	15	0	15	A																
	BE	425	18	331	78	22	0	48	18	8	2	2	1,065	0	0	0	0	0	A																
	BL	439	17	353	80	20	0	44	25	6	4	2	1,060	0	0	0	0	0	A																
	H	256	10	202	79	21	0	41	21	10	5	2	1,068	15	0	0	0	15	A																
MN 96041-1	W	407	15	343	84	16	0	46	22	6	3	7	1,078	5	0	0	0	5	A																
	BE	461	13	430	93	7	0	33	31	14	10	5	1,081	0	0	0	0	0	I																
	BL	756	16	727	96	4	0	17	22	19	17	21	1,080	10	0	15	0	25	I																
	BL	311	11	260	84	16	0	38	26	11	6	2	1,065	15	5	45	10	75	I																
	MN 97049-1																																		

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

	Total		Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz.		Culls		Size Distribution (% of US No. 1 Yield)						Internal Defects (%)										
	Loc	yield (cwt/a)		Yield (cwt/a)	%	%	%	%	2-4oz.		4-6oz.		6-8oz.		8-10oz.		>10oz.		Sp Gr	HH	IN	VD	BC	Total	Stage	
									21	26	22	10	15	1.083	0	0	0	15								15
MN 97124-1	BL	606	15	566	93	7	0	0	0	21	26	22	10	15	1.083	0	0	0	15	15	I					
MN 98001-1	BL	443	12	408	92	8	0	0	0	26	25	17	12	11	1.067	0	0	15	0	15	I					
MN 98001-4	BE	380	10	351	92	8	0	0	0	25	31	15	8	13	1.061	5	0	10	0	15	I					
	BL	614	12	594	97	3	0	0	0	14	18	16	15	33	1.080	10	0	0	0	10	I					
MN 98010-2	BL	255	5	247	97	3	0	0	0	15	18	20	10	35	1.077	10	0	15	0	25	I					
MN 98011-2	BE	349	9	331	95	5	0	0	0	30	23	24	8	10	1.068	0	0	0	0	0	I					
	BL	315	6	304	97	3	0	0	0	18	21	14	15	29	1.079	0	0	0	0	0	I					
MN 98070-3	BE	406	12	364	90	10	0	0	0	25	30	15	8	11	1.058	5	0	5	0	10	I					
	BL	638	14	608	95	5	0	0	0	20	22	16	17	21	1.064	0	0	0	0	0	I					
MN 98105-2	BL	428	9	404	95	5	0	0	0	20	15	17	11	32	1.077	5	0	5	15	25	I					
MN 99042-1	BL	556	9	549	99	1	0	0	0	9	20	14	13	42	1.069	0	20	20	0	40	E					
MN 99120-1	BL	469	15	420	90	10	0	0	0	39	28	10	8	5	1.064	0	0	10	0	10	E					
MN 99150-1	BL	769	16	726	94	6	0	0	0	14	19	18	15	28	1.057	0	0	40	0	40	E					
MN 99158-1	BL	706	18	663	94	6	0	0	0	23	32	21	12	5	1.087	0	0	20	0	20	E					
MN 99185-2	BL	706	21	635	90	10	0	0	0	31	29	20	7	3	1.113	0	0	0	0	0	E					
MN 99190-1	BL	332	8	312	94	6	0	0	0	20	28	24	7	15	1.080	0	0	10	0	10	E					
MN 99190-2	BL	505	10	494	98	2	0	0	0	13	21	28	19	17	1.061	0	0	0	0	0	E					
MN 99192-1	BL	590	14	555	94	6	0	0	0	20	26	13	11	23	1.077	0	0	10	0	10	E					
MN 99291-2	BL	752	17	719	96	4	0	0	0	18	23	24	11	20	1.076	0	0	0	40	40	E					
MN 99291-3	BL	443	9	422	95	5	0	0	0	17	14	20	13	32	1.064	0	0	20	20	40	E					

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

	Loc	Total yield (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz.		Culls %	Size Distribution (% of US No. 1 Yield)						Internal Defects (%)						Total Stage	
				(cwt/a)	%	%	%		2-4oz.		4-6oz.		6-8oz.		8-10oz.		Sp Gr	HH	IN	VD		BC
									412	94	6	0	23	23	23	22						
MN 99306-1	BL	438	11	19	656	93	7	0	0	23	23	33	19	8	6	1,119	0	20	30	0	50	E
MN 99325-2	BL	705	19																		E	
MN 99346-1	BL	359	11	11	328	91	9	0	0	32	32	32	15	7	5	1,075	0	0	0	0	E	
MN 99352-2	BL	744	17	17	706	95	5	0	0	19	26	22	13	15	15	1,069	10	0	0	0	10	E
MN 99364-1	BL	864	19	19	828	96	4	0	0	18	26	20	13	18	18	1,077	0	0	0	0	E	
MN 99367-1	BL	406	7	7	395	97	3	0	0	11	17	19	16	16	34	1,081	10	0	10	0	20	E
MN 99383-1	BL	752	13	13	731	97	3	0	0	8	16	14	19	40	40	1,089	0	0	10	10	20	E
MN 99400-1	BL	404	16	16	317	79	21	0	0	45	19	9	3	2	2	1,069	0	40	10	10	60	E
MN 99408-1	BL	915	24	24	856	94	6	0	0	24	27	20	11	12	12	1,085	50	20	0	0	70	E
MN 99418-1	BL	501	16	16	444	89	11	0	0	32	26	18	10	4	4	1,057	0	0	10	0	10	E
MN 99432-1	BL	793	14	14	767	97	3	0	0	13	12	17	16	39	39	1,087	0	0	0	0	0	E
MN 99456-2	BL	686	12	12	666	97	3	0	0	12	19	13	15	37	37	1,086	10	0	10	30	50	E
MN 99460-44	BL	409	13	13	370	91	9	0	0	35	31	19	6	0	0	1,075	0	0	20	0	20	E
MN 99460-45	BL	479	11	11	447	93	7	0	0	18	17	19	6	34	34	1,058	0	0	90	0	90	E
MN 99460-46	BL	463	15	15	401	87	13	0	0	35	23	8	15	5	5	1,073	10	10	0	50	70	E
MN 99460-54	BL	513	12	12	482	94	6	0	0	16	25	14	19	19	19	1,064	10	0	30	20	60	E
NDTX 4930-5 W	BL	720	12	12	709	98	2	0	0	9	16	18	19	37	37	1,064	0	0	0	0	0	A
NDTX 85404-8 W	BL	676	12	12	647	96	4	0	0	11	13	12	13	47	47	1,077	0	0	5	0	5	A

Minnesota Table 2. Total and US No. 1 yield, tuber distribution, tubers / plant, specific gravity, and internal quality of MN selections and cultivars by trial site.

Loc	Total yield (cwt/a)	Tubers / plant (avg.)	U.S. No. 1 Yield		<2 oz. %	Culls %	Size Distribution (% of US No. 1 Yield)					Internal Defects (%)					Total	Stage	
			U.S. No. 1 Yield (cwt/a)	%			2-4oz.	4-6oz.	6-8oz.	8-10oz.	>10oz.	Sp Gr	HH	IN	VD	BC			
NorValley	BE	342	10	310	90	10	0	36	26	13	7	9	1.063	0	0	0	0	0	A
	BE	468	12	444	95	5	0	27	22	18	9	20	1.068	0	0	0	0	0	I
	BL	488	12	457	94	6	0	20	24	18	14	19	1.075	0	5	0	0	5	A
	BL	703	14	677	96	4	0	15	22	19	13	27	1.071	0	0	20	0	20	E
	BL	513	12	482	94	6	0	23	21	17	14	19	1.073	0	0	5	0	5	I
	H	368	8	348	95	5	0	13	17	20	18	26	1.071	5	0	0	0	5	A
	W	502	9	494	98	2	0	13	17	16	20	31	1.082	0	0	0	0	0	A
Snowden	BE	354	7	340	96	4	0	14	19	23	12	27	1.074	0	0	0	0	0	A
	BE	446	10	423	95	5	0	16	25	23	16	15	1.071	0	0	0	0	0	I
	BL	579	9	568	98	2	0	9	15	16	14	44	1.081	10	0	5	0	15	A
	BL	653	10	640	98	2	0	9	14	15	16	44	1.080	0	0	20	0	20	E
	BL	647	10	633	98	2	0	10	14	15	19	41	1.084	5	0	0	0	5	I
	H	292	6	284	97	3	0	17	14	20	19	27	1.079	35	0	5	0	40	A
	W	445	8	441	99	1	0	13	19	24	15	29	1.089	5	0	0	0	5	A

Morris = M; BE = Becker Early (100 DAP); BL = Becker Late (145 DAP); CR = Crookston (120 DAP); H = Hollandale (120 DAP); W = Williston (140 DAP).

² Internal defects HH = Hollow heart; IN = Internal necrosis; VD = Vascular discoloration; BC = Brown center.

³ A = Advanced; I = Intermediate; E = Early stages of development.

NEBRASKA

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Introduction

In 2001, trials were conducted at Alliance, Champion, Minden, O'Neill, and Scottsbluff (Table 1). There were a total of 54 entries: 20 russet, 18 white, 9 red, and 7 yellow-skinned and -fleshed. All entries were tested at Scottsbluff. Fifteen white and three yellow chipping entries were planted at Alliance and Minden. Russet, red and four table yellow entries were planted at Champion and O'Neill. Nebraska participated in the North Central Regional (NCR) trial (30 entries), conducted at Scottsbluff.

Materials, Methods and Conditions

Soils were sandy loams to silty loams; pHs ranged from 5.2 (O'Neill) to 7.9 (Scottsbluff), and organic matter content was between 0.6 (O'Neill) and 1.7% (Scottsbluff). The ranges of major fertilizers were 150-380 lb N/a, 80-270 lb P₂O₅/a, 0-350 lb K₂O/a and 10-140 lb S/a. Boron was added at some sites; zinc was added with the foliar fungicides. Seed pieces were cut, treated with TOPS MZ or Evolve at Minden and stored for several days before planting. Growers used their conventional practices depending on location. Insecticides were Admire, Diazinon or Thimet applied at planting and post-emergence applications included Actara, Asana, Baythroid, Dimethoate, Furadan, Leverage, Monitor, Phaser, Provado, and Pounce, or none were used based on pests. Dual Magnum, Eptam, Prowl or Sencor were applied pre-emergence; Lorox, Matrix or Select were applied post-emergence. Disease treatments were Bravo Zn, Curzate, Dithane, Echo Zn, Equus Zn, Quadris, Ridomil, SuperTin, and Ultra-Flourish. Vines were desiccated by diquat or vine beating.

Trials were conducted under center-pivot irrigation except at Scottsbluff where it was under a linear-move system. The trial design was strip plots at all locations except Alliance where it was a RCBD with three replicates. In Alliance, 20 plants (15 ft) were harvested in each replicate. Twenty plants were used

at Minden (15 ft); 25 plants at O'Neill (23 ft), at Champion (27ft) and at Scottsbluff (20ft). The season was generally characterized as below normal precipitation, but more than last year, and above normal temperature, same as last year.

Yield data were taken on tubers under and over 1 7/8 inch diameter. Within two weeks after harvest, visual tuber defects were determined and so was specific gravity using a SFA hydrometer. Fry color after one month storage at 50°F was estimated with an SFA/PC color chart.

Results and Discussion

YIELD (Tables 2a and 3a):

Among chipping entries, NDTX4930-5 (round white) stood out at all three locations with the highest overall average yield. NY101 (Keuka Gold, yellow) was highest at two locations. No other entry had higher yields than Atlantic, the standard. The highest yields among russets were observed with ATX84706-2, CO85026-4 and TX1385-12. Another high yielding entry to note was AO87277-6 (Wallowa Rus.). A86102-6 and TXAV657-27 (Stampede Rus.) did well in Champion. A90586-11 was a high yielding long white at all locations and AC Maple Gold yielded the best of the yellow table entries. Among red entries, the late maturing entries Red LaSoda and A82705-1 (IdaRose) yielded high.

SPECIFIC GRAVITY (Tables 2b and 3b):

All chip entries, white and yellow, had specific gravities above 1.085 at all locations. Among russet entries, the best gravities were from Ranger Russet, A86102-6 and AO87277-6 (Wallowa Rus.) A90586-11 had the highest gravity of long whites.

COOKING COLOR (Tables 2b and 3b):

Whites entries in general gave light colored chips, < 1.5 on the scale. The darkest, yet still acceptable, chips came from MN19515 and B0564-9 among whites, and AC Brador and NY101 (Eva) among yellows.

From russets, the lightest fries (2 or less) came from A86102-6, AC91014-2, AO87277-6 (Wallowa Rus.), and W1348. All the yellow-fleshed table entries also fried light. Most entries were between 2 and 3.

TUBER DEFECTS (Tables 2c, 2d, 3c, and 3d):

Off-shape:

Chip entries in general showed little tuber off-shape. Three entries, however, did off-shape considerably at Minden -- W1355-1, AC Brador and MSG274-3 (Jacqueline Lee). Off-shape was also notable with MN19515. Russets showed the most off-shape response, especially at Scottsbluff. The most severe observations were with Russet Burbank and Ranger Russet at all locations. At Scottsbluff, all the Russet Norkotah strains showed off-shape while the standard did not. Other russets with severe off-shape (>15%) at a location were A91014-2, AO87277-6 (Wallowa Rus.), CO85026-4, TX1385-12, and W1348. Among long whites, Shepody showed off-shape. The reds and yellows had few off-shape tubers.

Common scab:

Common scab appeared at all locations and primarily affected chipping entries. The chip entries showing little common scab (<10% average) were AC89653-3, B0564-9, MN19157, MN19515, ND2676-10 (Dakota Pearl), NDTX4930-5, W1386, WIS75-30 (AC Glacier Chip), and NY101 (Keuka Gold, yellow). The most common scab was observed in AC87340-2, NY103 (Eva), AC Brador, and MSG274-3 (Jacqueline Lee).

Among the table entries, common scab only appeared in Scottsbluff. Entries showing common scab (>15%) were A90586-11 (long white), Yukon Gold and AC Maple Gold.

Black scurf:

Black scurf appeared among the chip entries at all locations. The most notable entries with infection were Atlantic, W1386 and WIS75-30 (AC Glacier Chip), each with >10% at two locations. Others with black scurf (>10%) at one location were MN19515, NDTX4930-5 and W1431. Among russets, black scurf was a factor only at Scottsbluff. Entries showing black scurf (>10%) were Rus. Norkotah Texas strains 223 and 278. Others showing at least 10% incidence A90586-11 (long white) and the yellows Yukon Gold, AC Maple Gold and TX1674-1w/y.

Hollow heart:

There was little hollow heart at any location. At Scottsbluff, it appeared in two Rus. Norkotah strains, CO#8 and TX#278.

MATURITY (Table 4):

Ratings were taken weekly from 15 Aug to 19 Sep. Table 4 identifies entries showing greater than 50% senescence at each reading date.

Nebraska Table 1. Key dates for each trial, 2001.

	Alliance	Imperial	Minden	O'Neill	Scottsbluff
Planting	5/1	4/9	5/2	4/24	5/9
Emerged	5/26	5/11	5/25	5/22	6/1
Death	9/1	8/17	9/20	9/4	9/19
Harvest	9/20	9/10	9/30	9/12	9/22
planting to death	123	130	141	133	143
emerged to death	98	98	118	105	110

Nebraska Table 2a. Yields at Alliance (ALL), Minden-(MIN) and Scottsbluff (SBF).

Chipping Entries	Total Yield, cwt/ac				Yield of >1 7/8" Tubers			
	ALL	MIN	SBF	ave.	ALL	MIN	SBF	ave.
Atlantic	449	466	482	466	426	437	467	443
Snowden	348	485	548	460	252	446	540	413
AC87340-2	381	466	504	450	313	398	475	395
AC89653-3	384	514	460	453	371	388	409	389
B0564-9	439	427	321	396	416	388	282	362
MN19157	374	417	299	363	348	340	277	322
MN19515	378	669	299	449	332	621	277	410
ND2676-10 ¹	394	456	336	395	342	407	299	349
NDTX4930-5w	426	660	533	540	407	621	518	515
NY103 ²	378	495	336	403	348	427	292	356
W1201	400	524	453	459	374	475	438	429
W1355-1	458	378	212	349	439	271	168	293
W1386	387	592	343	441	365	524	299	396
W1431	371	485	402	419	287	427	387	367
WIS75-30 ³	426	398	314	379	413	340	299	351
AC Brador *	387	456	453	432	368	446	423	412
MSG274-3 * ⁴	397	466	277	380	378	310	204	297
NY101 * ⁵	397	640	548	528	336	592	533	487
site means	398	502	396	431	362	444	366	388
lsd (0.05)	81				93			

* yellow-fleshed ¹ Dakota Pearl ² Eva ³ AC Glacier Chip AC ⁴ Jacqueline Lee ⁵ Keuka Gold

Nebraska Table 2b. Specific gravity and fry color at Alliance (ALL), Minden (MIN) and Scottsbluff (SBF).

Chipping Entries	Specific Gravity, (10 ⁻³)+1				Chip Color Chart			
	ALL	MIN	SBF	ave.	ALL	MIN	SBF	ave.
Atlantic	96	97	95	96	1	1	1	1
Snowden	93	93	99	95	1	1	1	1
AC87340-2	98	97	101	99	2	1	1	1.3
AC89653-3	92	91	94	92	1	1	1	1
B0564-9	105	93	90	96	1	2	2	1.7
MN19157	105	99	100	104	1	2	1	1.3
MN19515	85	89	96	90	2	1	3	2
ND2676-10 ¹	101	98	92	97	1	1	1	1
NDTX4930-5w	89	91	88	89	2	1	1	1.3
NY103 ²	98	98	96	97	1	2	1	1.3
W1201	94	94	98	95	1	1	1	1
W1355-1	98	98	87	94	1	2	1	1.3
W1386	93	94	85	91	1	1	1	1
W1431	99	96	92	96	1	1	1	1
WIS75-30 ³	98	97	91	95	1	1	1	1
AC Brador *	90	91	90	90	1	3	3	2.3
MSG274-3 * ⁴	95	97	92	95	1	2	1	1.3
NY101 * ⁵	101	96	84	94	2	2	2	2
site means	96	95	93	95	1.2	1.5	1.3	1.3

* yellow-fleshed ¹ Dakota Pearl ² Eva ³ AC Glacier Chip AC ⁴ Jacqueline Lee ⁵ Keuka Gold

Fry color: 1 = lightest to 5 = darkest. Color rating greater than 2 may be unacceptable for chips and greater than 3 may be unacceptable for fries.

Nebraska Table 2c. Off-shape and common scab at Alliance (ALL), Minden (MIN) and Scottsbluff (SBF).

Chipping Entries	% Off-Shape				% Common Scab			
	ALL	MIN	SBF	ave.	ALL	MIN	SBF	ave.
Atlantic	0	0	0	0	10	27	10	16
Snowden	1	0	0	0	13	21	2	12
AC87340-2	1	2	0	1	6	47	5	19
AC89653-3	1	6	1	3	1	15	0	5
B0564-9	3	0	2	2	0	0	1	0
MN19157	0	2	2	1	15	12	0	9
MN19515	0	8	11	6	0	6	8	5
ND2676-10 ¹	0	0	0	0	8	14	1	8
NDTX4930-5w	5	2	3	3	0	17	4	7
NY103 ²	0	0	3	1	9	49	1	20
W1201	0	6	0	2	14	17	0	10
W1355-1	0	16	0	5	39	0	0	13
W1386	0	0	4	1	21	0	0	7
W1431	0	3	0	1	11	31	0	14
WIS75-30 ³	0	1	1	1	10	0	0	3
AC Brador *	0	21	5	9	39	54	0	31
MSG274-3 * ⁴	0	19	3	7	17	78	1	32
NY101 * ⁵	11	1	1	4	9	0	0	3
site means	1	5	2	2.5	12	22	2	12

* yellow-fleshed ¹ Dakota Pearl ² Eva ³ AC Glacier Chip AC ⁴ Jacqueline Lee ⁵ Keuka Gold

Nebraska Table 2d. Black scurf and hollow heart at Alliance (ALL), Minden (MIN) and Scottsbluff (SBF).

Chipping Entries	% Black Scurf				% Hollow Heart			
	ALL	MIN	SBF	ave.	ALL	MIN	SBF	ave.
Atlantic	14	0	12	9	0	1	3	1
Snowden	0	0	5	2	0	0	1	0
AC87340-2	0	0	10	3	0	0	0	0
AC89653-3	0	0	0	0	8	0	0	3
B0564-9	0	0	9	3	0	0	0	0
MN19157	0	0	6	2	3	0	0	1
MN19515	0	0	17	6	0	0	0	0
ND2676-10 ¹	0	0	5	2	0	0	1	0
NDTX4930-5w	0	0	21	7	0	0	0	0
NY103 ²	0	0	8	3	0	0	1	0
W1201	0	0	4	1	0	0	0	0
W1355-1	0	9	9	6	0	0	0	0
W1386	14	12	0	9	1	0	0	0
W1431	14	0	0	5	0	3	4	2
WIS75-30 ³	0	23	14	12	0	0	0	0
AC Brador *	0	0	0	0	0	0	0	0
MSG274-3 * ⁴	0	0	0	0	0	0	0	0
NY101 * ⁵	0	0	0	0	0	0	0	0
site means	2.3	2.5	6.7	3.8	0.7	0.2	0.6	0.5

* yellow-fleshed ¹ Dakota Pearl ² Eva ³ AC Glacier Chip AC ⁴ Jacqueline Lee ⁵ Keuka Gold

Nebraska Table 3a. Yields at Imperial (IMP), O'Neill (O'N) and Scottsbluff (SBF).

Table Entries	Total Yield, cwt/ac				Yield of >1 7/8" Tubers			
	IMP	O'N	SBF	ave.	IMP	O'N	SBF	ave.
Ranger Russet *	248	411	380	346	216	360	358	311
Rus. Burbank *	275	430	270	325	178	259	256	231
Rus. Norkotah *	232	272	219	241	151	196	183	177
Rus. Norkotah #3 *	383	562	277	407	302	525	256	361
Rus. Norkotah #8 *	335	423	263	340	286	379	234	300
Rus. Norkotah #102 *	275	411	212	299	205	360	204	256
Rus. Norkotah #112 *	335	379	226	313	307	303	219	276
Rus. Norkotah #223 *	356	442	299	366	292	367	248	302
Rus. Norkotah #278 *	383	499	263	382	340	430	256	342
Rus. Norkotah #296 *	373	430	270	358	329	386	241	319
A86102-6 *	443	474	234	384	389	417	219	342
AC91014-2 *	302	360	292	318	248	284	256	263
AO85165-1 * ¹	389	449	292	377	351	411	292	351
AO87277-6 * ²	394	525	248	389	367	449	241	352
ATX84378-6 *	308	373	204	295	292	367	204	288
ATX84706-2 *	405	506	285	399	389	487	277	384
CO85026-4 *	356	525	402	428	324	461	380	388
TX1385-12 *	340	544	518	467	286	493	475	418
TXAV657-27 * ³	405	367	277	350	394	335	256	328
W1348ru *	389	442	256	362	313	379	241	311
Shepody **	405	379	234	339	356	329	204	296
A90586-11 **	448	619	314	460	389	544	277	403
MN18153 **	302	291	226	273	286	272	226	261
Dark Red Norland ***	448	398	307	384	416	360	277	351
Red LaSoda ***	589	834	489	637	551	815	482	616
A82705-1R *** ⁴	378	657	409	481	329	632	394	452
DT6063-1R *** ⁵	329	468	270	356	308	442	248	333
MN17922 ***	259	493	314	356	238	461	299	333
MN17993 ***	410	329	372	370	346	272	343	320
MN18365 ***	227	322	299	283	178	253	263	231
ND3574-5 *** ⁶	281	316	467	355	259	240	438	312
NDO2686-6 *** ⁷	248	417	321	329	205	303	307	271
Yukon Gold ****	313	404	255	324	281	379	234	298
AC Maple Gold ****	421	449	380	417	394	417	358	290
TX1523-1ru/y *****	340	354	350	348	297	329	336	321
TX1674-1w/y *****	286	360	270	305	216	297	256	256
site means	350	442	305	366	306	387	284	326

* russet; ** long white, *** red, **** yellow fleshed, ***** russet, yellow fleshed, ***** white, yellow fleshed

¹ Klamath Rus, ² Wallowa Rus, ³ Stampede Rus, ⁴ IdaRose, ⁵ Cherry Red, ⁶ Dakota Rose, ⁷ Mazama.

Nebraska Table 3b. Specific gravity and fry color at Imperial (IMP), O'Neill (O'N) and Scottsbluff (SBF).

Table Entries	Specific Gravity, (10 ⁻³)+1				Chip Color Chart			
	IMP	O'N	SBF	ave.	IMP	O'N	SBF	ave.
Ranger Russet *	70	84	91	82	3	2	2	2.3
Rus. Burbank *	65	74	87	75	3	3	3	3
Rus. Norkotah *	65	66	78	70	4	3	2	3
Rus. Norkotah #3 *	67	78	78	74	2	3	2	2.3
Rus. Norkotah #8 *	65	70	76	70	3	3	2	2.7
Rus. Norkotah #102 *	67	74	80	74	3	3	3	3
Rus. Norkotah #112 *	65	70	74	70	4	3	3	3.3
Rus. Norkotah #223 *	65	71	73	70	3	2	2	2.3
Rus. Norkotah #278 *	65	71	74	70	3	2	2	2.3
Rus. Norkotah #296 *	65	70	78	71	4	3	3	3.3
A86102-6 *	73	87	85	82	3	1	2	2
AC91014-2 *	69	81	78	76	2	1	1	1.3
AO85165-1 * ¹	65	74	78	72	3	1	4	2.7
AO87277-6 * ²	73	83	89	82	2	2	2	2
ATX84378-6 *	65	74	78	72	4	3	3	3.3
ATX84706-2 *	69	70	74	71	3	2	2	2.3
CO85026-4 *	68	80	83	77	3	2	3	2.7
TX1385-12 *	65	74	79	73	2	3	2	2.3
TXAV657-27 * ³	65	65	65	65	3	2	3	2.7
W1348ru *	68	80	78	75	2	2	2	2
Shepody **	74	77	91	81	2	2	3	2.3
A90586-11 **	80	86	90	85	2	2	3	2.3
MN18153 **	65	68	76	69	3	1	3	2.3
Dark Red Norland ***	.	.	78	.	.	.	.	.
Red LaSoda ***	.	.	85	.	.	.	.	.
A82705-1R *** ⁴	.	.	73	.	.	.	.	.
DT6063-1R *** ⁵	.	.	86	.	.	.	.	.
MN17922 ***	.	.	76	.	.	.	.	.
MN17993 ***	.	.	80	.	.	.	.	.
MN18365 ***	.	.	65	.	.	.	.	.
ND3574-5 *** ⁶	.	.	67	.	.	.	.	.
NDO2686-6 *** ⁷	.	.	67	.	.	.	.	.
Yukon Gold ****	68	80	85	78	2	1	1	1.3
AC Maple Gold ****	71	74	95	80	2	1	1	1.3
TX1523-1ru/y *****	67	74	84	75	2	2	1	1.7
TX1674-1w/y *****	71	83	88	81	2	1	1	1.3
site means	68	75	80	75	2.7	2.1	2.3	2.3

* russet; ** long white, *** red, **** yellow fleshed, ***** russet, yellow fleshed, ***** white, yellow fleshed

¹ Klamath Rus, ² Wallowa Rus, ³ Stampede Rus, ⁴ IdaRose, ⁵ Cherry Red, ⁶ Dakota Rose, ⁷ Mazama.

Fry color: 1 = lightest to 5 = darkest. Color rating greater than 2 may be unacceptable for chips and greater than 3 may be unacceptable for fries.

Nebraska Table 3c. Off-shape and common scab at Imperial (IMP), O'Neill (O'N) and Scottsbluff (SBF).

Table Entries	% Off-Shape				% Common Scab			
	IMP	O'N	SBF	ave.	IMP	O'N	SBF	ave.
Ranger Russet *	18	7	23	16	0	0	0	0
Rus. Burbank *	39	8	15	11	0	0	0	0
Rus. Norkotah *	1	0	1	1	0	0	0	0
Rus. Norkotah #3 *	5	0	25	10	0	0	0	0
Rus. Norkotah #8 *	1	2	21	8	0	0	0	0
Rus. Norkotah #102 *	2	0	12	5	0	0	0	0
Rus. Norkotah #112 *	3	1	25	10	0	0	0	0
Rus. Norkotah #223 *	2	2	30	11	0	0	0	0
Rus. Norkotah #278 *	0	3	25	9	0	0	0	0
Rus. Norkotah #296 *	2	1	18	7	0	0	0	0
A86102-6 *	4	3	9	5	0	0	0	0
AC91014-2 *	6	8	37	17	0	0	0	0
AO85165-1 * ¹	0	1	0	0	0	0	0	0
AO87277-6 * ²	2	1	17	7	0	0	0	0
ATX84378-6 *	5	3	5	4	0	0	0	0
ATX84706-2 *	1	3	14	6	0	4	5	3
CO85026-4 *	2	0	35	12	0	0	0	0
TX1385-12 *	5	7	24	12	0	0	0	0
TXAV657-27 * ³	1	0	5	2	0	0	0	0
W1348ru *	3	3	27	11	0	0	0	0
Shepody **	3	27	9	13	0	0	0	0
A90586-11 **	4	2	14	7	0	0	17	6
MN18153 **	0	0	7	2	0	1	0	0
Dark Red Norland ***	1	0	2	1	0	0	0	0
Red LaSoda ***	0	2	0	1	0	1	1	1
A82705-1R *** ⁴	0	3	6	3	0	0	1	0
DT6063-1R *** ⁵	1	1	2	1	0	0	4	1
MN17922 ***	1	1	1	1	0	0	0	0
MN17993 ***	1	0	3	1	0	0	0	0
MN18365 ***	3	2	2	2	0	0	0	0
ND3574-5 *** ⁶	1	0	1	1	0	0	0	0
NDO2686-6 *** ⁷	0	1	1	1	0	0	0	0
Yukon Gold ****	1	0	3	1	0	0	15	5
AC Maple Gold ****	0	1	0	0	0	0	21	7
TX1523-1ru/y *****	3	0	1	1	0	0	0	0
TX1674-1w/y *****	1	5	9	5	0	0	8	3
site means	3.4	2.7	12	6	0	0.2	2	9

* russet; ** long white, *** red, **** yellow fleshed, ***** russet, yellow fleshed, ***** white, yellow fleshed

¹ Klamath Rus, ² Wallowa Rus, ³ Stampede Rus, ⁴ IdaRose, ⁵ Cherry Red, ⁶ Dakota Rose, ⁷ Mazama.

Nebraska Table 3d. Black scurf and vascular discoloration at Imperial (IMP), O'Neill (O'N) and Scottsbluff (SBF).

Table Entries	% Black Scurf				% Hollow Heart			
	IMP	O'N	SBF	ave	IMP	O'N	SBF	ave.
Ranger Russet *	8	4	0	4	0	0	0	0
Rus. Burbank *	0	0	5	2	0	0	0	0
Rus. Norkotah *	0	0	3	1	0	0	0	0
Rus. Norkotah #3 *	0	0	3	1	0	0	2	1
Rus. Norkotah #8 *	0	0	10	3	0	0	10	3
Rus. Norkotah #102 *	0	0	0	0	0	0	2	1
Rus. Norkotah #112 *	0	0	0	0	0	0	7	2
Rus. Norkotah #223 *	2	0	17	6	0	0	8	3
Rus. Norkotah #278 *	0	0	13	4	0	0	20	7
Rus. Norkotah #296 *	0	0	0	0	0	0	1	0
A86102-6 *	7	7	8	7	0	0	0	0
AC91014-2 *	0	0	0	0	0	0	4	1
AO85165-1 * ¹	0	6	0	2	0	0	1	0
AO87277-6 * ²	3	0	0	1	0	1	0	0
ATX84378-6 *	0	0	0	0	0	0	1	0
ATX84706-2 *	0	0	10	3	0	0	3	1
CO85026-4 *	0	0	0	0	0	0	0	0
TX1385-12 *	4	9	10	8	0	0	0	0
TXAV657-27 * ³	0	0	0	0	0	0	1	0
W1348ru *	0	0	0	0	0	1	0	0
Shepody **	0	0	0	0	0	0	0	0
A90586-11 **	0	0	15	5	0	0	0	0
MN18153 **	0	0	5	2	0	0	0	0
Dark Red Norland ***	0	0	0	0	0	0	0	0
Red LaSoda ***	0	0	0	0	0	0	0	0
A82705-1R *** ⁴	0	0	0	0	0	0	0	0
DT6063-1R *** ⁵	0	0	0	0	0	0	0	0
MN17922 ***	0	0	0	0	0	0	0	0
MN17993 ***	0	0	0	0	0	0	0	0
MN18365 ***	0	0	0	0	0	0	1	0
ND3574-5 *** ⁶	0	0	0	0	0	0	0	0
NDO2686-6 *** ⁷	0	0	0	0	0	0	0	0
Yukon Gold ****	0	3	19	7	0	0	0	0
AC Maple Gold ****	0	0	18	6	0	0	0	0
TX1523-1ru/y *****	0	0	4	1	0	0	0	0
TX1674-1w/y *****	0	0	11	4	0	0	0	0
site means	0.7	0.8	4.2	1.9	0	0.1	1.7	0.6

* russet; ** long white, *** red, **** yellow fleshed, ***** russet, yellow fleshed, ***** white, yellow fleshed

¹ Klamath Rus, ² Wallowa Rus, ³ Stampede Rus, ⁴ IdaRose, ⁵ Cherry Red, ⁶ Dakota Rose, ⁷ Mazama.

Nebraska Table 4. Maturity groupings at Scottsbluff (54 entries).

8/15 (> 50% dead): [very early]

(reds) DT6063-1 (Cherry Red), MN18365

8/22 (> 50% dead): [very early]

(reds) Dark Red Norland, MN17993, ND3574-5 (Dakota Rose)

8/29 (> 50% dead): [early]

(reds) NDO2686-6 (Mazama)

(r. whites) B0564-9, NY103 (Eva)

(l. whites) MN18153

(yellows) Yukon Gold, AC Maple Gold, TX1523-1r/y

9/5 (> 50% dead): [early-mid]

(reds) MN17922

(russets) Russet Norkotah, RNCO 8, RNTX102, RNTX 278, RNTX296

(r. white) MN19157, ND2676-10 (Dakota Pearl), W1355-1, W1386

(yellow) TX1674-1w/y

9/12 (> 50% dead): [mid maturity]

(russets) RNCO 3, RNTX112, RNTX223, ATX84378-6, ATX84706-2, TXAV657-27 (Stampede Rus.), W1348

(r. whites) Atlantic, AC89635-3, MN19515, NDTX4930-5, WIS75-30 (AC Glacier Chip)

(yellows) MSG274-3 (Jacqueline Lee), NY101 (Keuka Gold)

9/19 (> 50% dead): [mid-late]

(russet) AO87277-6 (Wallowa Rus)

(r. whites) Snowden, W1431

(l. whites) Shepody, A90586-11

9/19 (25% to 50% dead; 9/27 expect >50% dead): [late]

(reds) Red LaSoda

(russets) A86102-6, AC91014-2, AO85165-1 (Klamath Rus), TX1385-12

9/19 (< 25% dead): [very late]

(reds) A82705-1 (IdaRose)

(russets) Rus. Burbank, Ranger Rus., CO85026-4

(whites) AC87340-2, W1201

(yellows) AC Brador

NEW JERSEY

Melvin R. Henninger

Introduction

Trials were conducted at the Rutgers Agricultural Research & Extension Center (RAREC) in Upper Deerfield Township and The Snyder Research & Extension Farm near Pittstown. All plots were 21' long and 3' wide and seed pieces were spaced at 9".

At the RAREC location, the experiments were conducted on an Aura loam with a pH of 6.4. On March 19, the cover crop was killed with 1.5 qt/A of Round-Up. The field was V ripped for primary tillage. On April 4, 50 lb/A of N-P₂O₅-K₂O was broadcasted and incorporated during final discing. The rows were marked with a modified potato planter that had the covering discs removed. Seed pieces were planted into the open furrows by hand. Admire 2F @ 1 pt/A was applied as an in-furrow spray for systemic insect control with a tractor mounted sprayer while covering the potatoes.

The varieties were planted on April 5. Prowl @ 1 qt/A and Sencor 4F @ 0.5 pt/A were applied on April 6. On April 23, Dual-Mag @ 1.3 pt/A, Sencor 4F @ 0.5 pt/A, and Gramoxone @ 1 pt/A were applied. An additional 1.3 pt/A of Dual-Mag was applied after hilling. On May 17, 100 lb/A of nitrogen as 34-0-0 was side-dressed during cultivation. The following foliar insecticide program was utilized: June 14 – Vydate L @ 2 qt, June 15 – Provado @ 3.75 oz, June 21 – rotacide @ 2.5 qt, PBO @ 1 pt, and manzate @ 2 lb, June 29 – Spin Tor @ 5 oz and Monitor @ 1 qt., July 12 – Vydate L @ 2 qt and manzate @ 2lb, Aug 7– Vydate @ 2 qt.

Monthly rainfall amounts were: April, 1.47"; May, 3.78"; June, 5.70"; July, 2.25"; and Aug, 3.64". Supplemental sprinkler irrigation was applied in 1.0" increments as needed.

The plots were harvested with a single-row mounted commercial harvester modified for bagging. No attempt was made to recover any lost tubers caused by normal harvester operation. All plots were sized with a spool sizer, and inspected for defects. Specific gravities were determined by weight in air and water. Chip color was done by Mr. Steve Molnar, of Wise Foods, seven days after harvest.

At the Snyder Farm, the experiment was conducted on a Washington silt loam soil. The cover crop was killed with Round-Up. The field was chisel plowed, 50 lb/A of N-P₂O₅-K₂O was broadcasted and incorporated. The rows were marked with a modified potato planter that had

the covering discs removed. Seedpieces were planted into the open furrows by hand on May 3. Admire 2F @ 1 pt/A was applied as an in-furrow spray for systemic insect control with a tractor mounted sprayer while covering the potatoes. Dual-Mag @ 1.3 pt/A and Sencor 4F 2.5 pt/A were applied on May 4. On May 31, 100 lb/A of nitrogen as 34-0-0 was side-dressed by hand just before a cultivation. Plots were harvested with a single-row potato digger and picked by hand. Round types were sized with a spool sizer, the long types were sized by weight, and specific gravities were determined by weight in air and water.

In 2001, the growing conditions were good with cool nights and warm sunny days after a long and late planting season. At RAREC conditions became less favorable during late June and July, and growth and tuber bulking were reduced. Ozone levels were high in June and July at both locations and some varieties were damaged. Insects and diseases were not a limiting factor.

To simplify above information, trade names of some products are used. No endorsement is intended, nor is criticism implied of similar products not named.

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Thanks to Agway Seed Potato Department in Presque Isle, Maine, especially Dick Moore, who annually spends a lot of phone time and many miles on my behalf gathering small lots of seed and shipping them to New Jersey.

New Jersey Table 1. Yields, specific gravities, and tuber sizes for 30 round white potato varieties, harvested main season and grown on a sandy loam soil at the Rutgers Agricultural Res. & Ext. Center - Upper Deerfield, NJ - 2001(1).

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
						1	7/8	2 1/2		1	2	3	4	5
NY 112	ne	479	453	127	1.086	96	59		2	4	37	44	14	1
AF1615- 1	ne	470	418	117	1.077	92	33		3	8	59	32	1	0
NY T 27-21	ny	474	411	115	1.076	94	48		8	6	45	38	9	1
Atlantic	ne	455	410	115	1.092	96	61		6	4	34	45	16	0
AF1938- 3	ne	487	399	112	1.078	96	60		15	4	36	43	17	0
NY E11-45	ny	440	393	110	1.067	93	47		5	7	47	43	3	1
NY U109- 6	ny	441	392	110	1.071	93	53		4	7	40	43	9	0
NY T 2- 2	ny	441	389	109	1.079	96	64		8	4	32	45	19	0
Aquilon	ne	485	385	108	1.088	93	48		15	7	45	42	6	0
Katahdin	ne	426	382	107	1.075	94	43		4	6	51	39	4	0
NY 115	ne	434	379	106	1.081	90	32		3	10	58	28	4	0
Reba	ct	422	376	105	1.078	91	34		3	9	57	31	4	0
Eva	ne	408	367	103	1.073	94	58		4	6	37	49	8	0
AF1455-20	ne	412	366	103	1.083	93	44		5	7	49	36	7	0
B1240- 1	ne	414	365	102	1.088	97	70		8	3	27	44	25	0
NY U 47-21	ny	403	358	100	1.088	92	45		3	8	47	37	8	0
B0766- 3	ne	420	358	100	1.079	93	47		8	7	46	42	5	0
Superior	ne	422	357	100	1.075	94	58		10	6	36	47	10	1
Kennebec	ne	498	354	99	1.079	94	40		24	6	54	35	5	0
B1425- 9	ne	415	350	98	1.089	93	50		9	7	43	44	6	0
Snowden	ne	393	348	98	1.083	93	43		5	7	50	36	7	0
NY T 3- 9	ny	379	337	95	1.078	94	53		6	6	41	47	6	0
NY 102	ne	376	326	91	1.083	90	30		3	10	60	28	2	0
NY 124	ny	342	317	89	1.084	96	56		4	4	40	46	10	0
NY 120	ny	341	305	85	1.075	97	73		8	3	24	49	24	0
Envol	ne	345	302	85	1.072	96	56		9	4	40	47	9	0
NY T 20-15	ny	342	294	82	1.078	94	57		8	6	37	43	14	0
NY T 35-34	ny	328	291	82	1.082	91	44		2	9	47	35	9	0
AF1775- 2	ne	372	290	81	1.088	91	24		16	9	66	23	1	0
Yukon Gold	ne	347	278	78	1.078	94	53		15	6	41	42	10	0
CV (4)		13	15		.317									
W-D Bayes LSD.05		77	86		.004	3	12		6	3	10	10	7	ns

(1) Plots were planted on 4/05, and harvested on 8/06.

(2) ct = Certified Seed, ne = NE Regional Project 184, ny = Cornell University.

(3) Size 1= <1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= >4".

(4) CV=Coef of variation; W-D Bayes LSD.05=Waller Duncan test for least significant difference.

New Jersey Table 2. Plant and tuber characters, tuber defects, chip color and overall rating for varieties and seedlings grown in Upper Deerfield, NJ 2001 (1).

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS(2)							Chip Color	Comments				
	P	A	a	M	S	T			S	G	H	S	B	H	H						
						C	T	S										D	T	G	C	S	B	N	R	All
NY 112	8	6		7	3	7	5	3	6	8	9	9	9	9	1	4	6	yes	4.0	app+ hn	
AF1615- 1	8	6		6	3	8	7	2	7	6	9	9	9	9	0	0	ok+	3.5	y+ irregular		
NY T 27-21	7	3		4	7	8	8	3	7	7	9	9	9	9	0	2	7	ok+	3.0	y+ v deep end	
Atlantic	7	4		5	5	7	6	3	7	7	9	7	9	9	1	31	4	std	4.0	heat necrosis	
AF1938- 3	7	6		6	4	8	9	5	6	7	9	7	9	9	1	4	7	ok+	2.0	hn irr bcl	
NY E11-45	6	5		6	5	8	8	4	5	7	7	9	9	9	0	4	6	no	4.0	hn 2bc	
NY U109- 6	8	5		5	7	8	8	2	6	7	9	9	9	9	0	7	6	yes	4.0	heat necrosis	
NY T 2- 2	8	5		5	5	7	6	4	7	8	7	7	7	9	0	1	6	ok+	3.5	some tuber rot	
Aquilon	8	4		6	6	8	8	2	6	7	7	5	7	9	4	5	7	no	3.0	hn hh gc 2bc	
Katahdin	8	6		7	5	8	8	2	5	7	7	9	9	9	0	1	6	std		y+ green	
NY 115	8	4		6	6	8	7	2	6	7	8	9	9	9	0	0	ok+	3.0	so-so		
Reba	7	3		5	6	8	8	3	6	7	9	9	9	9	0	1	8	yes		Nice tubers	
Eva	7	4		6	5	7	8	5	6	7	9	9	9	9	0	1	8	ok+		so-so	
AF1455-20	8	7		7	5	8	7	2	6	7	9	9	9	9	0	0	ok+	4.0	so-so		
B1240- 1	7	6		8	7	8	7	2	6	8	9	6	9	9	2	0	ok+	3.0	gc hh		
NY U 47-21	7	5		7	5	8	7	3	7	8	8	8	9	9	1	3	6	yes	4.0	hn 3bc	
B0766- 3	7	4		6	6	8	7	3	7	7	8	9	9	9	2	0	yes	2.0	hh lbc		
Superior	7	4		5	9	7	6	3	7	7	8	9	9	9	2	2	6	yes		hn 2bc	
Kennebec	8	7		8	2	8	9	5	5	6	5	9	3	9	0	2	7	std		hs sg	
B1425- 9	8	4		6	7	7	6	2	6	6	8	6	9	9	7	2	7	no	4.0	app- hh	
Snowden	7	5		5	6	7	5	3	7	7	9	9	8	9	0	3	6	ok+	3.0	heat necrosis	
NY T 3- 9	6	3		4	7	8	8	4	6	6	8	9	6	9	5	0	no	3.5	hh irr lbc		
NY 102	7	3		4	7	8	7	2	7	7	9	9	9	9	0	0	ok-			low yield	
NY 124	6	3		6	8	7	7	2	7	7	8	8	9	9	0	0	ok	2.0	lbc		
NY 120	7	4		6	4	7	6	2	6	7	7	8	9	9	0	1	8	ok	4.0	low yield	
Envol	6	3		2	9	7	7	4	4	6	9	7	9	9	2	0	ok-	4.0	hh low yield		
NY T 20-15	6	2		5	8	7	8	3	7	7	9	5	9	8	0	4	7	ok-	2.0	hn gc green	
NY T 35-34	5	5		6	3	7	6	2	8	8	9	9	9	9	0	2	8	no	4.0	low yield	
AF1775- 2	6	6		7	2	8	8	4	5	7	6	9	9	5	9	0	4	6	no		hn hs sg
Yukon Gold	7	5		4	7	7	8	3	7	7	9	9	9	9	4	6	7	yes		hn hh	

(1) See NJ Rating Table for plant and tuber characters, tubers defects and chip color ratings.

(2) HH = No. of hollow heart tubers out of 40. HN = No. of heat necrosis tubers out of 40 cut.

New Jersey Table 3. Yields, specific gravities, and tuber sizes for 29 round white potato varieties, harvested main season and grown on a sandy loam soil at the Rutgers Agricultural Res. & Ext. Center - Upper Deerfield, NJ - 2001(1).

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield % of Sup.	Spec. Grav.	% O v e r			Culls	% Tuber Sizes (3)				
					1	7/8	2 1/2		1	2	3	4	5
ATX85404-8w	tx	511	434	1.078	93	54	9	7	39	41	13	0	
Salem	ny	476	431	1.070	94	60	4	6	34	43	17	0	
Atlantic	cf	467	428	1.087	96	59	5	4	37	44	16	0	
B0602- 4	cf	466	395	1.070	93	47	9	7	45	35	12	0	
Norwis	ct	412	378	1.065	96	63	4	4	33	49	14	0	
B1826- 1	cf	462	378	1.074	94	60	13	6	34	40	19	1	
B0766- 3	cf	422	371	1.077	95	56	7	5	38	41	15	0	
B1870-17	cf	413	364	1.069	93	53	5	7	41	41	12	0	
SC8801-2	me	398	363	1.063	97	67	6	3	30	55	13	0	
B0178-34	cf	410	358	1.094	97	61	10	3	36	47	13	0	
B0564- 8	cf	410	355	1.073	92	56	6	8	36	39	16	0	
B1919- 9	cf	446	354	1.074	86	28	8	14	58	25	2	0	
B0607- 2	cf	432	342	1.071	92	46	14	8	46	39	6	0	
Coastal Chip	cf	401	342	1.075	94	61	9	6	32	40	21	0	
B1884- 9	cf	383	341	1.081	94	54	5	6	39	40	13	1	
AF 875-15	me	389	340	1.084	97	69	10	3	28	45	23	0	
AF1921- 4	me	382	336	1.077	91	45	3	9	46	40	5	0	
B0564- 9	cf	372	333	1.075	95	61	6	5	34	39	21	1	
Katahdin	cf	368	325	1.068	92	45	4	8	46	40	6	0	
Kennebec	cf	453	320	1.075	91	39	24	9	52	33	6	0	
Superior	cf	348	314	1.072	94	51	4	6	43	40	11	0	
B1870- 3	cf	410	309	1.058	94	62	20	6	32	41	20	0	
B1880- 4	cf	385	305	1.070	92	53	14	8	40	46	6	0	
Pike	ct	341	302	1.090	91	45	3	9	46	38	7	0	
B1806- 8	cf	366	299	1.083	89	36	8	11	52	28	8	0	
COTX90046-5w	tx	344	286	1.083	90	41	7	10	49	39	2	0	
B1880- 6	cf	373	279	1.074	82	19	9	18	63	16	3	0	
B1871- 1	cf	296	259	1.067	91	33	4	9	58	30	3	0	
MN 19157	mn	332	256	1.080	87	39	11	13	47	35	5	0	
CV (4)		16	19	.296									
W-D Bayes LSD.05		103	110	.004	5	14	5	5	11	12	10	ns	

(1) Plots were planted on 4/05, and harvested on 8/06.

(2) cf = USDA Chapman Farm, me = Univ. of Maine, tx = Texas A&M Univ.

(3) Size 1= <1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= >4".

(4) CV=Coef of variation; W-D Bayes LSD.05=Waller Duncan test for least significant difference.

New Jersey Table 5. Yields, specific gravities, and tuber sizes for 225 white potato seedlings, harvested main season and grown on a sandy loam soil at the Rutgers Agricultural Res. & Ext. Center - Upper Deerfield, NJ - 2001(1).

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield % of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)			
					1	7/8	2 1/2		1	2	3	4	5
Atlantic	me	475	137	1.091	96	60	7	4	36	41	18	1
Superior	me	357	100	1.077	96	62	9	4	34	45	17	0
AF1470- 6	me	423	117	1.060	96	66	11	4	30	38	28	0
AF1565-12	me	305	80	1.067	89	30	9	11	59	28	2	0
AF1764- 3	me	456	139	1.071	97	62	3	3	35	55	7	0
AF2061- 2	me	306	66	1.067	82	11	19	18	71	11	0	0
AF2206- 2	me	452	134	1.079	95	64	4	5	31	47	17	0
AF2206- 9	me	387	109	1.082	96	61	10	4	35	55	7	0
AF2207- 4	me	350	92	1.091	86	15	5	14	71	15	0	0
AF2207- 6	me	353	92	1.077	95	50	16	5	45	45	5	0
AF2210- 2	me	514	120	1.076	95	53	24	5	42	33	18	2
AF2210- 5	me	465	135	1.092	94	60	4	6	34	52	8	0
AF2211- 2	me	422	122	1.087	97	65	8	3	32	52	13	0
AF2211- 4	me	269	77	1.099	91	36	3	9	56	35	1	0
AF2211- 6	me	410	100	1.097	93	54	19	7	39	41	12	0
AF2211- 9	me	431	115	1.091	97	66	15	3	31	48	18	0
AF2211-10	me	406	120	1.090	96	55	5	4	41	48	7	0
AF2211-14	me	324	72	1.087	78	9	11	22	69	8	1	0
AF2213- 4	me	393	99	1.086	97	74	19	3	23	53	22	0
AF2214- 1	me	492	136	1.092	96	64	11	4	33	49	15	0
AF2215- 1	me	315	82	1.095	92	43	13	8	50	34	9	0
AF2215- 3	me	413	126	1.068	94	41	0	6	53	37	3	0
AF2215- 4	me	455	132	1.090	97	62	7	3	34	56	7	0
AF2215- 5	me	341	85	1.085	96	59	20	4	37	54	5	0
AF2217- 3	me	321	89	1.099	92	28	7	8	64	28	0	0
AF2219- 1	me	454	131	1.068	97	77	8	3	20	34	44	0
AF2219- 2	me	268	70	1.079	87	23	7	13	64	23	0	0
AF2220- 1	me	378	106	1.079	96	64	9	4	32	54	10	0
AF2220- 3	me	436	123	1.081	93	39	7	7	54	34	5	0
AF2220- 7	me	324	99	1.087	97	40	3	3	57	36	4	0
AF2222- 2	me	470	135	1.078	93	46	4	7	46	35	11	0

New Jersey Table 5. Continued.

New Jersey Potato Seed Source (2) Varieties														
Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
						1	7/8	2 1/2		1	2	3	4	5
AF2222-3	me	402	360	117	1.089	95	32	5	62	32	0	0	0	0
AF2222-4	me	353	248	80	1.067	79	20	11	59	20	0	0	0	0
AF2242-10	me	429	373	121	1.086	95	38	9	57	34	4	0	0	0
AF2244-3	me	334	254	82	1.082	92	34	17	59	30	4	0	0	0
AF2256-1	me	344	149	48	1.088	74	11	41	63	11	0	0	0	0
AF2259-7	me	453	348	113	1.087	93	56	17	37	49	7	0	0	0
AF2260-5	me	340	272	88	1.074	97	69	18	29	45	24	0	0	0
AF2260-7	me	315	214	69	1.076	93	46	27	47	44	2	0	0	0
AF2262-1	me	455	362	117	1.062	96	56	17	40	43	13	0	0	0
AF2265-2	me	385	306	99	1.073	95	59	17	36	48	12	0	0	0
AF2267-7	me	465	385	125	1.077	93	50	11	44	47	2	0	0	0
AF2267-8	me	412	333	108	1.077	94	60	14	34	46	14	0	0	0
AF2268-2	me	355	279	90	1.086	86	18	9	69	18	0	0	0	0
AF2268-6	me	302	207	67	1.080	86	32	21	55	24	8	0	0	0
AF2269-1	me	491	364	118	1.071	93	26	20	67	24	2	0	0	0
AF2269-5	me	552	412	133	1.077	94	28	21	66	28	0	0	0	0
AF2269-8	me	590	418	135	1.070	92	38	23	53	34	4	0	0	0
AF2269-9	me	328	236	77	1.070	88	27	18	61	22	5	0	0	0
AF2271-5	me	333	276	89	1.082	88	15	6	73	15	0	0	0	0
AF2271-6	me	366	219	71	1.083	93	51	36	42	41	9	0	0	0
B1709-6	cf	333	276	89	1.089	90	27	8	64	23	4	0	0	0
B1944-2	cf	531	369	119	1.071	91	18	23	73	18	0	0	0	0
B1953-117	cf	294	208	67	1.065	86	16	17	70	16	0	0	0	0
B1957-1	cf	403	264	85	1.070	83	21	21	62	19	2	0	0	0
B1957-150	cf	467	365	118	1.087	92	38	16	55	35	3	0	0	0
B1958-53	cf	355	232	75	1.083	78	11	17	68	8	3	0	0	0
B1958-85	cf	410	328	106	1.074	84	18	4	65	18	0	0	0	0
B1960-18	cf	408	348	113	1.083	92	42	8	51	39	2	0	0	0
B1970-1	cf	397	347	112	1.082	92	25	5	67	24	1	0	0	0
B1970-5	cf	443	374	121	1.075	97	66	13	31	41	25	0	0	0
B1970-6	cf	443	336	109	1.084	91	35	16	55	29	6	0	0	0
B1970-7	cf	318	263	85	1.079	92	46	10	46	36	8	0	0	0
B1970-9	cf	304	211	68	1.075	87	18	21	69	18	0	0	0	0
B1970-11	cf	366	297	96	1.085	90	30	10	60	29	1	0	0	0

New Jersey Table 5. Continued.

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
						1	7/8	2 1/2		1	2	3	4	5
B1970-12	cf	435	301	98	1.080	87		26	21	13	61	18	8	0
B1970-14	cf	357	272	88	1.085	86		27	11	14	59	27	0	0
B1971-5	cf	353	260	84	1.092	84		8	12	16	76	8	0	0
B1971-11	cf	460	421	136	1.085	94		46	3	6	48	39	7	0
B1973-2	cf	271	178	58	1.071	68		3	3	32	65	3	0	0
B1973-3	cf	461	353	114	1.084	88		24	13	12	64	22	2	0
B1973-5	cf	317	203	66	1.080	78		5	17	22	73	5	0	0
B1973-10	cf	220	73	24	1.065	46		0	27	54	46	0	0	0
B1973-12	cf	308	225	73	1.063	80		23	9	20	57	23	0	0
B1973-13	cf	194	125	41	1.065	76		13	15	24	63	13	0	0
B1975-2	cf	281	127	41	1.079	69		12	35	31	57	12	0	0
B1976-1	cf	176	75	24	1.063	81		11	47	19	69	11	0	0
B1976-4	cf	183	59	19	1.079	34		0	5	66	34	0	0	0
B1976-6	cf	223	91	29	1.072	49		0	17	51	49	0	0	0
B1977-1	cf	295	169	55	1.082	71		3	19	29	68	3	0	0
B1979-1	cf	333	151	49	1.057	60		5	24	40	55	3	2	0
B1979-10	cf	223	99	32	1.068	61		1	27	39	59	1	0	0
B1980-2	cf	272	153	49	1.081	78		19	28	22	59	19	0	0
B1980-16	cf	394	304	98	1.079	87		11	11	13	75	11	0	0
B1980-19	cf	311	140	45	1.080	69		5	35	31	64	5	0	0
B1991-126	cf	384	226	73	1.071	87		37	32	13	50	25	11	0
B1991-127	cf	466	324	105	1.065	84		21	17	16	63	18	3	0
B1991-129	cf	353	278	90	1.069	90		55	12	10	35	39	14	2
B1991-177	cf	388	334	108	1.077	93		50	7	7	43	40	9	0
B2000-185	cf	308	284	92	1.085	95		65	3	5	30	47	18	0
B2000-186	cf	352	225	73	1.089	84		19	24	16	65	18	2	0
B2000-189	cf	432	342	111	1.097	92		36	14	8	56	35	1	0
B2000-190	cf	512	375	121	1.082	89		25	18	11	65	17	8	0
B2001-186	cf	320	243	79	1.081	95		43	21	5	52	36	7	0
B2001-194	cf	557	459	149	1.085	92		41	11	8	51	38	4	0
B2001-197	cf	573	481	156	1.069	99		73	15	1	26	55	18	0
B2003-133	cf	383	325	105	1.087	93		43	8	7	50	31	12	0
B2003-136	cf	499	436	141	1.087	94		55	7	6	39	44	11	0
B2003-140	cf	310	184	60	1.080	85		23	30	15	62	23	0	0

New Jersey Table 5. Continued.

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield		Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
			cwt/a	% of Sup.		1	7/8	2 1/2		1	2	3	4	5
B2006-162	cf	289	241	78	1.083	93	37	11	7	56	33	4	0	
B2008-177	cf	342	286	93	1.090	86	18	3	14	68	17	1	0	
B2008-178	cf	369	314	102	1.089	90	45	6	10	45	40	5	0	
B2018- 3	cf	510	398	129	1.065	94	45	17	6	50	40	5	0	
B2018- 7	cf	353	205	66	1.072	75	9	22	25	66	9	0	0	
B2018- 8	cf	427	344	111	1.067	88	35	8	12	53	33	2	0	
B2021-15	cf	514	403	130	1.073	87	8	9	13	79	8	0	0	
B2024- 9	cf	539	382	124	1.071	87	46	18	13	41	41	4	0	
B2024-10	cf	508	446	144	1.085	95	51	7	5	44	38	12	0	
B2024-26	cf	390	351	114	1.085	93	28	3	7	65	26	2	0	
B2024-33	cf	263	199	64	1.073	82	6	7	18	75	6	0	0	
B2029- 1	cf	308	221	72	1.057	87	29	17	13	58	27	2	0	
B2035- 1	cf	250	91	30	1.077	68	0	46	32	68	0	0	0	
B2035- 3	cf	391	192	62	1.082	82	0	40	18	82	0	0	0	
B2044- 3	cf	304	186	60	1.064	81	21	25	19	60	21	0	0	
B2054- 6	cf	498	353	114	1.076	97	52	27	3	45	45	7	0	
B2055- 7	cf	346	250	81	1.083	91	43	21	9	48	38	5	0	
B2061- 7	cf	454	322	104	1.074	94	38	25	6	57	34	4	0	
MN 19336	mn	430	300	97	1.086	82	20	15	18	62	18	1	0	
NY 112	ny	569	523	169	1.083	98	74	6	2	24	50	23	0	
NY E11-45	ny	494	434	141	1.071	94	56	7	6	38	45	12	0	
NY T 3- 5	ny	317	285	92	1.077	97	46	7	3	51	45	2	0	
NY T 3- 9	ny	450	395	128	1.074	93	58	5	7	34	43	16	0	
NY T 20-15	ny	424	370	120	1.076	96	66	9	4	30	49	18	0	
NY T 27-21	ny	557	499	161	1.078	94	49	5	6	45	35	12	2	
NY T 88-19	ny	478	423	137	1.076	95	61	7	5	34	47	14	0	
NY U 47- 2	ny	156	120	39	1.088	93	55	16	7	37	32	23	0	
NY U 75- 1	ny	538	438	142	1.079	96	65	15	4	31	50	15	0	
NY U 85-12	ny	434	362	117	1.083	96	63	13	4	33	49	14	0	
NY V 7- 3	ny	354	288	93	1.078	91	21	10	9	70	21	0	0	
NY V 12- 2	ny	507	451	146	1.076	96	65	8	4	32	42	23	0	
NY V 15- 6	ny	397	332	107	1.083	92	37	9	8	55	31	5	0	
NY V 15- 8	ny	325	262	85	1.085	85	18	5	15	67	18	0	0	
NY V 15-28	ny	441	382	124	1.078	95	61	9	5	34	45	15	0	

New Jersey Table 5. Continued.

New Jersey table 5. Continued.													
Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield % of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
					1	7/8	2 1/2		1	2	3	4	5
NY V 15-71	ny	516	466	1.078	93	41	3	7	52	35	6	0	0
NY V 15-72	ny	344	249	1.071	90	50	20	10	40	40	10	0	0
NY V 18-5	ny	527	414	1.089	93	52	15	7	40	52	0	0	0
NY V 18-27	ny	401	335	1.086	91	46	9	9	45	40	6	0	0
NY V 22-1	ny	408	335	1.082	91	25	10	9	66	25	0	0	0
NY V 22-9	ny	465	389	1.071	90	25	8	10	65	25	0	0	0
NY V 22-12	ny	395	282	1.082	88	19	19	12	69	16	3	0	0
NY V 23-11	ny	409	336	1.063	88	22	7	12	66	21	1	0	0
NY V 23-61	ny	497	427	1.068	95	54	9	5	41	44	11	0	0
NY V 72-8	ny	346	301	1.081	91	42	5	9	50	37	5	0	0
NY V 73-5	ny	393	355	1.090	96	56	5	4	39	47	9	0	0
NY V 75-9	ny	366	336	1.067	94	30	2	6	64	30	0	0	0
NY V 76-13	ny	567	522	1.089	98	66	6	2	31	54	13	0	0
NY V 76-17	ny	424	383	1.095	93	27	3	7	67	27	0	0	0
NY V 76-19	ny	409	383	1.065	95	43	1	5	52	43	0	0	0
NY V 77-14	ny	370	295	1.077	95	46	16	5	50	41	5	0	0
NY V 78-6	ny	342	291	1.082	94	52	9	6	41	36	16	0	0
NY V 78-19	ny	353	323	1.084	92	41	0	8	50	38	4	0	0
NY V 78-25	ny	352	307	1.075	95	56	8	5	40	43	13	0	0
NY V 78-28	ny	301	218	1.082	81	14	11	19	67	14	0	0	0
NY V101-1	ny	425	335	1.083	83	20	6	17	64	20	0	0	0
NY V101-9	ny	565	515	1.076	97	78	6	3	19	46	31	2	0
NY V135-1	ny	335	286	1.080	89	31	4	11	58	29	3	0	0
NY V137-3	ny	427	351	1.083	95	61	13	5	34	43	17	0	0
Tx1674-1W	tx	344	191	1.075	84	22	34	16	62	13	9	0	0
NDTX4930-5W	tx	474	406	1.079	96	53	11	4	43	47	6	0	0
W1313	ne	399	357	1.100	91	23	2	9	68	23	0	0	0
W97-1200-1	me	213	145	1.083	78	0	13	22	78	0	0	0	0
W97-4238-3	me	349	268	1.069	87	12	12	13	75	12	0	0	0
W97-4287-2	me	480	365	1.090	97	40	21	3	56	35	5	0	0
W97-4291-1	me	378	283	1.073	81	4	7	19	77	4	0	0	0
Eva	ne	509	485	1.075	97	73	2	3	24	58	15	0	0
German Butte	ct	333	230	1.079	73	12	5	27	61	12	0	0	0
Peanut	ct	80	8	1.104	13	0	20	87	13	0	0	0	0

New Jersey Table 5. Continued.

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber			Sizes (3)		
						1	7/8	2 1/2		1	2	3	4	5	
Red Skinned Seedlings															
AF2138- 1	me	257	150	49	1.094	62	0	0	5	38	62	0	0	0	
AF2151- 1	me	288	223	72	1.075	85	11	11	9	15	75	11	0	0	
AF2230- 2	me	330	277	90	1.085	97	64	64	13	3	33	48	16	0	
AF2230- 5	me	337	260	84	1.072	97	73	73	21	3	25	46	26	0	
B1425- 9	cf	495	440	142	1.092	95	60	60	6	5	35	44	16	0	
B1521- 2	cf	276	227	74	1.070	85	26	26	3	15	59	26	0	0	
B1523- 4	cf	386	319	103	1.075	86	18	18	3	14	68	18	0	0	
B1752- 5	cf	293	270	87	1.060	96	43	43	4	4	53	42	1	0	
B1758- 3	cf	249	225	73	1.071	91	36	36	1	9	55	34	2	0	
B1758- 4	cf	597	501	162	1.075	93	58	58	10	7	35	46	11	0	
B1763- 4	cf	306	281	91	1.078	94	49	49	2	6	45	38	11	0	
B1816- 5	cf	259	225	73	1.066	92	38	38	6	8	54	36	2	0	
B1951- 5	cf	445	257	83	1.082	86	37	37	33	14	49	26	11	0	
B1952- 2	cf	348	322	104	1.075	97	73	73	4	3	24	59	14	0	
B1952- 4	cf	286	231	75	1.083	87	25	25	7	13	62	24	1	0	
B2017- 2	cf	268	120	39	1.072	73	4	4	39	27	70	2	2	0	
B2021- 3	cf	361	221	71	1.083	69	1	1	11	31	67	1	0	0	
B2021-12	cf	414	232	75	1.072	61	2	2	8	39	59	2	0	0	
B2027- 2	cf	309	277	90	1.085	89	32	32	0	11	58	29	2	0	
B2033- 3	cf	301	216	70	1.075	76	10	10	6	24	66	10	0	0	
CO86218-2	ne	303	251	81	1.072	85	22	22	3	15	63	22	0	0	
MN 17993	mn	48	38	12	1.062	89	69	69	10	11	19	58	11	0	
MN 19055	mn	100	74	24	1.062	82	15	15	9	18	66	15	0	0	
MN 19528	mn	189	138	45	1.067	75	15	15	3	25	60	15	0	0	
NDTX 731-1R	tx	366	303	98	1.059	89	41	41	7	11	48	22	18	0	
NDTX4271-5R	tx	359	339	110	1.059	95	55	55	1	5	40	39	16	0	
NDTX4304-1R	tx	295	265	86	1.058	94	64	64	5	6	30	30	31	3	
W97-4290-1	me	286	171	55	1.065	81	10	10	26	19	71	10	0	0	
Norland	cf	257	230	75	1.088	91	23	23	2	9	69	19	4	0	
Dark Red															
Norland	ne	292	210	68	1.057	92	43	43	22	8	50	37	6	0	
Redsen	cf	266	230	75	1.065	93	51	51	6	8	41	40	11	0	
Chieftain	ne	402	335	109	1.067	89	29	29	7	11	60	29	0	0	

New Jersey Table 5. Continued.

New Jersey Table 5. Continued.														
Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (4)				
						4 oz	8 oz			1	2	3	4	5
Russetted Skinned Seedlings														
AO87277- 6	or	458	304	98	1.079	18	85	18	21	15	67	18	0	0
A 90586-11	or	299	217	70	1.083	36	89	36	18	11	52	32	4	0
AF1753-16	ne	404	141	46	1.079	17	83	17	58	17	66	17	0	0
AF1866- 8	me	300	230	75	1.071	39	93	39	18	7	55	39	0	0
AF2133-17	me	268	204	66	1.075	7	82	7	7	18	74	7	0	0
AF2174- 3	me	326	214	69	1.080	16	87	16	25	13	71	16	0	0
B1409- 2	ne	410	338	109	1.088	16	88	16	6	12	72	16	0	0
B1409- 2	cf	427	371	120	1.084	35	93	35	7	7	58	29	6	0
B1933- 3	cf	347	272	88	1.077	12	84	12	6	16	72	10	2	0
B1956-86	cf	418	178	58	1.078	0	70	0	39	30	70	0	0	0
B2035-11	cf	359	301	97	1.071	60	95	60	12	5	34	48	12	0
B2035-13	cf	331	210	68	1.073	19	87	19	28	13	68	19	0	0
B2035-14	cf	305	165	53	1.076	5	64	5	16	36	59	5	0	0
B2048- 4	cf	221	179	58	1.077	27	88	27	8	13	61	25	2	0
B2049- 2	cf	216	175	57	1.075	13	81	13	0	19	68	13	0	0
B2056-14	cf	256	204	66	1.069	9	80	9	0	20	71	9	0	0
B2059- 2	cf	289	244	79	1.076	12	88	12	5	12	77	12	0	0
MN 18153	mn	200	160	52	1.071	9	88	9	8	12	78	9	0	0
MN 19315	mn	196	125	41	1.080	3	69	3	7	31	66	3	0	0
Tx1385-12Ru	tx	419	376	122	1.082	58	95	58	6	5	38	48	9	0
Tx1523- 1Ru	tx	391	322	104	1.073	79	97	79	16	3	19	47	30	2
ATX84706-2Ru	tx	503	387	125	1.074	70	97	70	20	3	27	51	19	0
TXNS 296	tx	421	312	101	1.080	22	85	22	13	15	63	19	3	0
Amey	cf	342	322	104	1.053	35	94	35	0	6	59	33	2	0
Gem Russet	ne	342	266	86	1.086	20	86	20	9	14	65	20	0	0
Russet														
Norkotah	ne	368	287	93	1.080	24	86	24	10	14	62	22	2	0
Russet														
Burbank	ne	210	129	42	1.079	1	66	1	7	34	65	1	0	0
Stampede	tx	422	360	116	1.063	27	88	27	3	12	61	27	0	0

(1) Plots were planted on 4/05, and harvested on 8/03.

(2) cf = USDA Chapman Farm, me = Univ. of Maine, mn = Univ. of Minnesota, ne = NE Regional Proj., ny = Cornell Univ. and tx = Texas A&M.

(3) Size 1= <1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= >4".

(4) Size 1= <4 oz., S2= 4 to 8 oz., S3= 8 to 12 oz., S4= 12 to 16 oz., S5= >16 oz.

New Jersey Table 6. Plant and tuber characters, tuber defects, chip color and overall rating for varieties and seedlings grown in Upper Deerfield, NJ 2001 (1).

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS(2)										Over		Comments
	P	A	a	p	M	S	C	T	S	D	T	S	G	H	S	B	H	H	N	R	All
Atlantic	7	-			6	3	7	6	2	8	8	9	9	9	9	9	1	30	5	std	
Superior	6	-			3	8	8	7	3	7	7	9	9	9	9	9	0	4	8	std	
AF1470- 6	7	3			4	6	8	8	2	6	7	9	7	9	9	9	0	4	6	no	heat necrosis
AF1565-12	5	3			6	7	8	7	5	7	6	8	9	5	9	9	4	0		no	y- hollow heart
AF1764- 3	9	5			5	2	8	8	2	8	7	9	9	9	9	9	0	0		yes	y+ late
AF2061- 2	6	4			3	7	8	7	8	5	5	7	9	5	9	9	0	0		no	heat sprouts y-
AF2206- 2	7	7			9	6	8	8	3	6	7	8	9	9	9	9	0	0		yes	y+
AF2206- 9	7	4			6	5	8	7	3	6	7	7	9	7	9	9	0	1	8	ok+	so-so
AF2207- 4	6	3			4	4	8	7	3	6	6	8	9	9	9	9	0	0		no	so-so
AF2207- 6	6	3			3	7	8	6	3	7	7	8	5	9	9	9	0	3	6	no	heat necrosis
AF2210- 2	7	4			6	6	8	9	3	4	6	6	9	9	9	9	0	0		ok+	y+
AF2210- 5	5	5			7	6	8	7	3	5	7	8	9	9	9	9	0	7	6	no	heat necrosis
AF2211- 2	8	5			5	6	8	6	2	7	7	8	7	9	9	9	1	0		yes	growth cracks lbc
AF2211- 4	9	5			5	5	8	7	2	8	8	9	8	8	9	9	1	0		ok	y- app+
AF2211- 6	8	4			4	8	7	7	2	8	8	9	7	9	9	9	0	8	5	no	heat necrosis
AF2211- 9	8	5			5	7	8	7	2	8	7	9	8	9	9	9	1	4	5	no	heat necrosis
AF2211-10	7	6			6	4	7	6	2	8	8	8	7	9	9	9	0	9	4	no	heat necrosis
AF2211-14	7	4			4	8	8	8	3	7	7	9	7	9	9	9	2	1	7	no	hh 3bc ac
AF2213- 4	6	4			4	7	8	7	3	7	7	7	9	9	9	9	0	8	5	no	heat necrosis
AF2214- 1	7	4			4	6	8	7	3	8	7	6	9	9	9	9	0	0		yes	y+
AF2215- 1	7	5			6	7	8	7	4	7	7	9	9	5	9	9	0	0		no	heat sprouts
AF2215- 3	6	4			4	8	7	7	2	7	8	9	9	9	9	9	0	1	6	ok+	heat necrosis y+app+
AF2215- 4	8	5			6	6	7	6	2	6	8	7	9	7	9	9	0	6	6	no	heat necrosis
AF2215- 5	7	5			6	7	8	9	2	5	7	9	7	9	9	9	0	1	5	no	heat necrosis ac
AF2217- 3	6	4			5	5	7	8	3	8	7	9	9	9	9	9	0	0		ok-	so-so
AF2219- 1	6	5			5	6	8	9	4	5	8	8	9	8	9	9	0	0		yes	y+
AF2219- 2	6	5			4	8	8	8	2	8	7	8	9	9	9	9	0	0		no	y- s-
AF2220- 1	6	4			6	6	7	6	2	6	6	8	9	9	9	9	0	5	6	no	heat necrosis
AF2220- 3	6	6			5	7	8	7	2	7	7	8	9	9	9	9	0	8	4	no	heat necrosis
AF2220- 7	7	7			6	8	8	8	2	6	6	9	9	9	9	9	1	0		??	wet spot
AF2222- 2	8	4			8	7	8	7	2	7	8	9	9	7	9	9	0	0		yes	y+

New Jersey Table 6. Continued.

New Jersey table 6. Continued.																										
PLANT				TUBER CHARACTERS							TUBER DEFECTS(2)															
P	A	M	a	S	S	C	T	S	D	T	S	G	H	S	B	H	N	R	Over	Comments						
Variety	a	p	t	s	s	l	x	h	p	a	G	C	S	S	B	H	N	R	All							
AF2222- 3	8	5	7	4	8	8	8	2	8	8	9	9	9	9	9	0	0	0	yes	y+ app+						
AF2222- 4	6	2	4	8	7	8	7	3	7	7	9	9	9	9	9	0	0	0	ok	y-						
AF2242-10	7	3	5	7	8	8	7	4	6	7	9	9	9	9	9	0	0	0	ok+	y+						
AF2244- 3	8	7	8	3	7	8	6	2	6	6	7	9	6	9	9	0	3	6	no	heat necrosis						
AF2256- 1	7	4	7	8	8	8	8	4	8	3	2	7	3	9	9	0	1	6	no	sg hs						
AF2259- 7	9	9	9	1	8	8	8	4	7	7	6	9	6	9	9	0	0	0	ok-	hs sg						
AF2260- 5	7	5	6	2	8	8	9	2	6	7	8	9	6	9	9	0	6	4	no	heat necrosis						
AF2260- 7	8	5	5	6	7	8	7	2	5	6	7	4	5	9	9	0	2	5	no	heat necrosis hs						
AF2262- 1	5	2	6	7	8	8	8	3	6	7	5	9	7	9	9	0	0	0	no	second growth						
AF2265- 2	6	5	3	6	7	8	7	5	5	6	7	9	6	9	9	2	6	7	no	heat necrosis						
AF2267- 7	7	6	7	6	8	8	9	3	7	6	9	9	9	9	9	0	0	0	ok-	heat sprouts						
AF2267- 8	7	6	8	5	8	8	7	2	7	6	7	7	6	9	9	0	2	7	no	hs lbc						
AF2268- 2	7	5	5	4	9	8	8	5	7	7	8	9	8	9	9	0	0	0	ok-	y-						
AF2268- 6	7	6	5	6	7	7	7	2	7	6	8	9	6	9	9	0	0	0	no	hs y-						
AF2269- 1	6	4	4	5	8	8	7	6	6	7	8	8	8	9	9	1	1	6	ok+	gr heat necrosis						
AF2269- 5	6	5	6	5	8	8	9	4	6	5	6	9	7	9	9	0	0	0	ok-	y+ sg						
AF2269- 8	8	6	7	9	9	8	7	6	7	5	9	9	6	9	9	0	0	0	no	irregular hs						
AF2269- 9	8	3	4	9	9	8	7	6	7	5	9	8	9	9	9	0	1	7	no	app-						
AF2271- 5	7	6	7	9	8	8	8	7	6	7	8	7	9	9	9	0	0	0	??	wet spot						
AF2271- 6	6	4	6	7	8	8	9	7	6	6	7	7	9	9	9	0	1	8	??	wet spot						
B1709- 6	6	6	6	8	7	8	7	3	7	7	9	9	9	9	9	3	1	8	no	hollow heart						
B1944- 2	8	3	5	8	8	8	7	8	5	5	8	9	5	9	9	0	0	0	no	hs app-						
B1953-117	5	2	2	9	2	8	8	3	5	2	6	9	6	9	9	0	2	7	no	app- sg						
B1957- 1	9	8	9	1	9	8	6	8	5	3	5	6	9	9	9	0	7	4	no	sg gc app-						
B1957-150	7	6	7	2	7	8	9	5	7	5	9	9	9	9	9	0	1	7	no	y- app-						
B1958-53	7	6	6	6	6	7	7	6	7	6	6	9	9	9	9	0	0	0	rot sg							
B1958-85	7	3	5	5	8	8	6	6	6	6	8	9	9	9	9	0	6	6	no	heat necrosis						
B1960-18	8	3	4	8	7	7	7	3	6	7	9	9	9	9	9	0	1	6	ok+	y+ heat necrosis						
B1970- 1	6	5	5	4	7	7	6	3	7	8	8	7	9	9	9	0	3	4	ok-	heat necrosis						
B1970- 5	7	5	8	7	8	8	8	4	5	7	8	9	9	9	9	0	5	3	no	heat necrosis						
B1970- 6	6	3	5	7	7	8	8	5	5	7	8	9	6	9	9	0	2	6	no	heat necrosis gc						
B1970- 7	7	4	4	7	7	8	7	3	5	6	9	9	7	9	9	0	4	5	no	heat necrosis y- lbc						
B1970- 9	7	5	5	4	8	8	7	6	6	6	7	9	9	9	9	0	0	0	no	y- sg						
B1970-11	7	3	4	7	8	8	7	5	6	6	8	9	8	9	9	0	1	5	no	y-						

New Jersey Table 6. Continued.

Variety	PLANT										TUBER CHARACTERS										TUBER DEFECTS(2)										Over All	Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	P					A					M					S					C					T							S					D					T					S					G					H					S					B					H					N					R					H																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p			a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p	a	p

New Jersey Table 6. Continued.

New Jersey		Table 10. Continued.		PLANT										TUBER CHARACTERS										TUBER DEFECTS(2)										Comments
Variety	P	A	a	p	M	t	s	S	C	T	X	I	S	h	D	T	T	G	C	S	B	H	H	N	R	All	Over							
B2006-162	6	5			5	5	7		8	9	9	5	6	7				7	9	9	9	9	0	0			no	y-						
B2008-177	6	3			4	7	7		8	7	7	3	7	6				6	6	9	6	9	0	7	5		no	heat necrosis						
B2008-178	7	5			6	6	6		8	7	7	4	7	7				7	9	9	9	9	0	7	4		no	heat necrosis						
B2018-3	8	6			6	3	3		6	7	7	3	7	7				7	9	9	9	9	0	0		yes	wet spot y+							
B2018-7	6	5			6	5	5		8	7	7	7	6	5				5	9	5	9	9	0	5	5		no	heat necrosis						
B2018-8	7	5			5	6	6		8	8	8	3	5	5				6	9	6	9	9	0	6	6		no	heat necrosis						
B2021-15	8	4			6	4	4		8	8	9	3	4	5				6	9	9	9	9	1	0		ok+	app- y+							
B2024-9	7	5			5	5	6		8	8	8	7	5	5				5	8	9	6	9	0	0		no	y+ app- irregular							
B2024-10	8	6			7	4	7		7	6	7	3	8	8				9	9	9	9	9	1	6	5		no	heat necrosis						
B2024-26	7	5			7	6	7		7	7	7	2	8	8				8	9	9	9	9	0	0		yes	wet spot app+							
B2024-33	6	2			2	2	9		8	7	7	2	7	7				9	9	9	9	9	0	0		??	wet spot							
B2029-1	6	6			2	2	8		7	8	7	4	7	7				8	8	9	9	9	0	0		??	wet spot							
B2035-1	7	4			5	5	8		6	4	4	6	7	3				7	5	5	9	9	1	3	5		no	heat necrosis						
B2035-3	8	5			4	4	5		6	4	4	8	7	5				4	9	6	9	9	1	0		no	sg hs							
B2044-3	4	3			2	4	4		8	9	9	3	8	7				8	9	9	9	9	0	5	3		no	heat necrosis						
B2054-6	9	3			5	6	5		8	8	9	6	6	5				6	9	6	9	9	0	6	5		no	heat necrosis						
B2055-7	6	6			6	5	5		8	8	8	7	7	7				7	7	9	9	9	0	2	7		no	y- heat necrosis						
B2061-7	6	6			7	5	7		8	7	7	6	6	6				6	8	9	9	9	0	0		no	irregular sg							
MN 19336	7	4			7	7	7		8	8	8	5	6	7				5	9	5	9	9	0	0		no	sg hs							
NY 112	8	6			5	5	3		7	5	3	6	8	8				9	9	9	9	9	0	0		yes	app+ heavy net							
NY E11-45	7	6			6	5	5		8	8	9	5	5	7				9	9	9	9	9	0	7	7		no	heat necrosis br wh						
NY T 3-5	7	1			2	2	2		8	8	8	3	7	7				8	9	9	9	9	0	0		ok+	y-							
NY T 3-9	7	3			5	6	7		8	8	7	4	5	7				9	9	9	9	9	5	0		no	hollow heart							
NY T 20-15	7	3			6	7	7		8	7	7	2	8	7				8	8	9	9	9	0	0		ok	y- v deep bud							
NY T 27-21	8	3			5	6	5		8	7	6	2	8	7				7	8	9	9	9	0	0		yes	y++							
NY T 88-19	8	3			6	5	6		8	7	6	2	5	7				7	8	9	9	9	0	0		yes	y+							
NY U 47-2	5	5			6	5	5		8	7	7	2	6	7				8	8	9	9	9	0	0		no	y-							
NY U 75-1	8	5			6	3	3		8	8	8	3	5	7				7	6	9	9	9	0	2	8		ok+	y+						
NY U 85-12	7	5			6	3	3		8	8	8	3	6	7				7	6	9	9	9	5	2	7		ok+	y+ gc						
NY V 7-3	6	4			5	7	2		8	8	8	3	6	6				6	9	9	9	9	0	3	4		no	heat necrosis sg lbc						
NY V 12-2	8	5			7	2	2		8	8	9	2	8	8				9	9	9	9	9	0	0		yes	late y+							
NY V 15-6	7	3			6	6	6		8	7	7	2	5	7				8	9	9	9	9	0	1	7		ok+	so-so						
NY V 15-8	6	6			5	2	8		8	7	7	3	7	6				9	9	9	9	9	0	0		no	y-							
NY V 15-28	7	3			4	9			8	7	7	3	6	7				9	8	9	9	9	0	3	7		yes	y+						

New Jersey Table 6. Continued.

Variety	PLANT										TUBER CHARACTERS										TUBER DEFECTS (2)										Over All	Comments																									
	P					M					S					C					T					S							G					H					H					N					R				
	a	p	a	p	a	t	s	s	s	l	x	h	p	a	t	a	p	a	G	C	S	B	S	H	S	B	S	H	S	B			S	H	N	R	All																				
NY V 15-71	8	6				8	3	8	8	8	3	6	6	8	8	8	8	9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	yes	y++ app+																					
NY V 15-72	6	4				5	5	8	8	8	2	7	7	7	7	7	7	6	9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	no	y- sg																						
NY V 18-5	8	4				7	3	8	8	8	3	6	6	6	6	6	6	5	9	9	9	9	9	0	1	8	5	no	sg late																												
NY V 18-27	7	5				6	4	8	8	8	2	6	6	6	6	6	6	7	9	9	9	9	9	0	6	5	no	heat necrosis sg																													
NY V 22-1	7	5				6	3	8	7	7	2	7	7	7	7	7	7	8	9	9	9	9	9	0	0	0	0	ok-	ac s-																												
NY V 22-9	7	5				5	4	8	7	7	2	7	7	7	7	7	7	9	9	9	9	9	9	0	1	8	no	ac s-																													
NY V 22-12	9	6				6	3	8	6	6	2	6	6	6	6	6	6	9	9	9	9	9	1	1	8	no	rot y-																														
NY V 23-11	7	3				7	3	8	7	7	5	6	5	5	5	5	5	9	9	9	9	9	0	1	7	no	irregular																														
NY V 23-61	7	4				7	2	8	6	6	2	6	6	6	6	6	6	8	9	9	9	9	0	7	5	no	heat necrosis																														
NY V 72-8	7	6				7	5	8	7	7	2	5	6	7	7	7	7	9	9	9	9	9	0	0	0	ok-	rot so-so																														
NY V 73-5	7	5				6	5	8	8	8	2	7	8	8	8	8	8	9	8	9	9	9	0	0	0	yes	app+ y+																														
NY V 75-9	8	3				6	6	8	8	8	3	8	8	8	8	8	8	9	9	9	9	9	0	0	0	yes	app+																														
NY V 76-13	9	6				8	3	8	7	7	2	8	7	7	7	7	7	8	9	9	9	9	2	0	0	yes	y++ hh																														
NY V 76-17	7	7				8	4	8	9	9	3	5	6	6	6	6	6	8	8	9	9	9	0	1	4	ok+	heat necrosis																														
NY V 76-19	7	4				5	6	7	7	7	2	7	7	7	7	7	7	9	9	9	9	9	0	0	0	yes	y+																														
NY V 77-14	7	3				6	6	8	7	7	2	7	7	7	7	7	7	9	5	9	9	9	0	0	0	ok	y-																														
NY V 78-6	7	2				7	5	8	8	8	2	5	7	7	7	7	7	8	9	9	9	9	0	1	8	??	wet spot																														
NY V 78-19	7	7				8	6	8	8	8	2	8	8	8	8	8	8	9	9	9	9	9	0	0	0	yes	y+																														
NY V 78-25	7	6				4	8	8	8	8	2	6	8	8	8	8	8	9	9	9	9	9	0	0	0	yes	lbc																														
NY V 78-28	6	3				3	8	8	7	7	2	7	6	6	6	6	6	9	7	9	9	9	0	0	0	??	wet spot																														
NY V101-1	8	3				3	8	8	7	7	5	6	6	6	6	6	6	9	9	9	9	9	0	0	0	ok+	y+																														
NY V101-9	7	7				8	6	8	8	8	3	8	8	8	8	8	8	9	9	9	9	9	0	1	6	yes	y++																														
NY V135-1	7	4				5	7	8	8	8	2	8	8	8	8	8	8	9	6	9	9	9	0	0	0	ok-	gc																														
NY V137-3	7	6				6	3	7	6	6	5	7	6	6	6	6	6	6	9	9	9	9	0	3	7	ok-	lbc heat necrosis																														
Tx1674-1W	5	3				5	4	7	7	7	6	5	5	5	5	5	5	6	5	5	5	9	0	0	0	no	hs gc yf4 pinkeye																														
NDTX4930-5W	8	5				5	4	8	8	8	5	6	6	6	6	6	6	6	9	7	9	9	6	0	0	ok	hh sg																														
W1313	8	6				9	3	7	6	6	2	8	8	8	8	8	8	6	9	9	9	9	0	2	6	ok	heat necrosis																														
W97-1200-1	6	5				3	9	8	7	7	3	8	8	8	8	8	8	5	6	9	9	9	0	0	0	no	sg gc																														
W97-4238-3	6	2				3	8	8	8	8	3	6	6	6	6	6	6	8	9	9	9	9	1	1	6	no	s-																														
W97-4287-2	9	7				9	6	7	7	7	4	5	6	6	6	6	6	5	9	9	9	9	0	7	6	no	heat necrosis sg																														
W97-4291-1	7	2				1	9	9	7	8	2	8	8	8	8	8	8	7	9	6	9	9	3	0	0	no	hh hs irregular																														
Eva	8	5				6	6	8	8	8	3	6	6	6	6	6	6	8	9	9	9	9	1	1	8	yes	hh																														
German Butte	8	6				6	4	7	6	6	2	8	8	8	8	8	8	8	9	9	9	9	0	10	5	no	hn																														
Peanut	9	6				8	8	9	8	7	9	8	8	8	8	8	8	3	9	6	9	9	0	0	0	???	sg app--																														

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New Jersey Table 6. Continued.

Variety		PLANT				TUBER CHARACTERS							TUBER DEFECTS(2)										Over	Comments
		P	A	M	S	C	T	S	D	T	S	G	H	S	B	H	H	N	R	All				
Variety		a	p	t	s	l	x	h	p	a	S	G	C	S	B	H	H	N	R	All				
Russetted Skinned Seedlings																								
AO87277- 6	8	7	8	7	4	6	8	5	4	4	4	9	9	9	9	0	3	5	no	heat necrosis sg				
A90586-11	7	6	8	5	8	7	7	6	5	5	6	9	9	9	9	0	0	0	no	irregular sg hs				
AF1753-16	7	6	9	5	7	7	8	7	2	2	3	6	5	9	0	0	0	no	sg hs gc					
AF1866- 8	7	4	3	9	5	4	7	6	5	5	5	9	9	9	9	0	0	0	no	sg gr irregular				
AF2133-17	7	4	5	9	5	4	7	7	5	5	8	9	9	9	9	0	0	0	no	app- irregular y-				
AF2174- 3	8	7	7	7	7	6	8	7	5	5	3	9	9	9	9	0	0	0	no	sg s- y-				
B1409- 2	8	5	6	8	5	4	8	6	6	6	8	9	9	9	9	0	1	6	ok+	heat necrosis y+				
B1409- 2	7	4	4	7	5	4	8	6	6	6	7	9	9	9	9	0	0	0	ok+	y-				
B1933- 3	7	3	4	9	6	4	8	6	6	6	8	8	9	9	9	0	0	0	ok	app-				
B1956-86	6	4	6	9	4	5	9	6	5	5	4	9	9	9	9	0	2	6	no	heat necrosis sg				
B2035-11	8	6	7	8	5	4	8	6	6	6	7	7	9	9	9	2	0	0	ok	app- sg gc hh				
B2035-13	8	2	5	7	5	4	8	7	7	7	9	9	9	9	9	0	0	0	ok-	app+ y-				
B2035-14	9	5	8	8	7	7	7	7	3	3	5	9	7	9	9	0	3	5	no	heat necrosis sg				
B2048- 4	6	7	4	8	4	3	7	7	6	6	8	9	9	9	9	3	3	5	no	heat necrosis hh				
B2049- 2	6	3	4	7	7	7	7	7	6	6	7	9	9	9	9	0	0	0	ok-	y-				
B2056-14	6	2	3	9	5	4	7	6	6	6	9	9	9	9	9	0	0	0	ok-	y-				
B2059- 2	8	6	6	8	5	4	7	6	6	5	9	6	9	9	9	0	0	0	ok-	gc y-				
MN 18153	7	7	8	8	7	6	6	6	5	5	8	8	6	9	9	0	0	0	no	hs irregular				
MN 19315	6	4	5	9	8	7	4	7	6	4	9	9	9	9	9	0	0	0	??	wet spot lbc				
Tx1385-12Ru	7	4	6	2	6	7	7	6	4	7	6	4	9	9	9	0	0	0	ok	v big irregular				
Tx1523- 1Ru	5	4	3	7	7	7	7	5	7	7	6	9	7	9	9	0	0	0	no	hs sg irregular				
ATX84706-2Ru	7	6	6	6	7	6	8	5	6	5	9	6	8	9	9	1	0	0	ok+	y+ gc hh				
TXNS 296	6	6	5	8	5	4	8	5	6	6	7	9	9	9	9	0	0	0	yes	y+ sg				
Amey	8	5	4	5	4	3	8	6	6	6	8	7	9	9	9	0	0	0	ok+	app-				
Gem Russet	9	6	7	8	5	4	5	6	7	7	7	9	9	9	9	0	1	8	ok	so-so				
Russet																								
Norkotah	6	5	5	8	4	2	7	6	7	7	8	9	9	9	9	0	0	0	std	y- app+				
Russet																								
Burbank	8	6	6	6	5	3	9	6	1	1	1	8	8	9	9	0	0	0	std	sg irr app-				
Stampede	6	4	3	8	5	3	8	6	7	8	6	9	9	9	9	0	0	0	yes	y+				

(1) See NJ Rating Table for plant and tuber characters, tubers defects and chip color ratings.

(2) HH = No. of hollow heart tubers out of 10. HN = No. of heat necrosis tubers out of 10 cut.

New Jersey Table 7. Yields, specific gravities, and tuber sizes for 38 round potato varieties, harvested late season and grown on a silt loam soil at the Snyder Agricultural Research & Extension Farm near Pittstown, NJ -2001 (1).

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% Over			% Culls	% Tuber Sizes (3)				
						1	7/8	2 1/2		1	2	3	4	5
Aquilon	ne	750	710	164	1.079	98	75	75	4	2	23	51	24	0
B1919- 9	cf	664	627	145	1.082	98	84	84	4	2	14	43	35	6
Salem	ny	647	606	140	1.068	98	85	85	4	2	13	37	42	6
NY T 88-19	ny	626	593	137	1.082	98	82	82	4	2	16	37	37	9
txA85404-8w	tx	634	577	133	1.075	98	80	80	7	2	17	48	32	0
Aquilon	ne	628	574	133	1.081	98	75	75	7	2	23	45	24	6
AF1455-20	ne	588	563	130	1.076	97	80	80	2	3	17	38	36	6
NY U 75- 1	ny	579	541	125	1.081	98	79	79	5	2	19	41	36	1
B1870-17	cf	632	540	125	1.069	98	73	73	13	2	25	44	29	0
NY T 27-21	ny	566	529	122	1.069	98	70	70	5	2	28	45	24	1
NY T 2- 2	ny	581	524	121	1.072	98	90	90	8	2	8	31	54	5
B1884- 9	cf	554	512	118	1.086	99	87	87	7	1	12	44	39	3
NY T 35-34	ny	531	509	118	1.083	98	73	73	2	2	25	46	26	1
NY U 85-12	ny	522	504	116	1.071	99	84	84	2	1	15	35	47	3
B1806- 8	cf	535	502	116	1.077	99	69	69	5	1	30	45	23	0
txND4930-5W	tx	543	489	113	1.074	98	74	74	8	2	24	42	32	0
B1880- 6	cf	536	487	112	1.080	95	68	68	5	5	28	47	21	0
B1870- 3	cf	563	482	111	1.060	96	67	67	11	4	30	37	25	5
B1826- 1	cf	555	469	108	1.075	99	80	80	14	1	18	30	39	11
NY T 20-15	ny	522	468	108	1.070	97	72	72	7	3	24	31	39	2

New Jersey Table 7. Continued.

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield % of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
					1	7/8	2 1/2		1	2	3	4	5
NY U109- 6	ny	504	467	1.072	97	67		4	3	30	34	26	6
NY 120	ny	470	456	1.076	99	88		2	1	12	34	37	16
NY U 47-21	ny	475	438	1.077	95	64		3	5	32	39	20	4
NY T 3- 5	ny	496	434	1.079	99	87		11	1	12	23	52	12
COTX90046-5w	tx	527	429	1.089	94	65		13	6	29	42	19	3
B1871- 1	cf	441	425	1.062	98	79		2	2	19	29	44	6
NY 124	ny	470	423	1.072	98	81		8	2	18	37	38	6
MN 19336	mn	495	406	1.080	93	48		12	7	45	35	12	0
B1880- 4	cf	428	372	1.070	95	65		9	5	30	40	25	0
Envol	ne	401	364	1.070	99	86		8	1	12	37	47	2
NY 102	ne	400	364	1.073	94	56		3	6	38	42	14	0
NY U 47- 2	ny	385	324	1.085	98	72		14	2	27	55	16	0
Tx1674- 1W	tx	378	319	1.078	92	53		8	8	39	32	21	0
MN 19157	mn	365	305	1.078	88	35		6	12	53	33	2	0
B1944- 2	cf	402	304	1.075	89	32		15	11	57	24	9	0
AF1565-12	me	348	301	1.061	96	63		11	4	34	45	18	0
AF1764- 3	me	307	272	1.057	93	40		5	7	53	33	8	0
AF2061- 2	me	226	132	1.059	86	19		32	14	67	16	3	0

(1) Plots were planted on 5/03, vine killed on 9/06 and harvested on 9/17.

(2) cf = USDA Chapman Farm, mn = University of Minnesota, ne = NE Regional Proj.,
ny = Cornell Univ., and tx = Texas A&M University.

(3) Size 1= <1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= >4".

New Jersey Table 8. Plant and tuber characters, tuber defects, and overall rating for varieties and seedlings grown near Pittstown, NJ 2001 (1).

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS(2)										Comments
	P	A	M	S	S	C	T	S	D	T	S	G	H	S	B	H	N	R	Over All
	a	p	t	s	s	l	x	h	p	a	G	C	S	B	B	H	N	R	
Aquilon	8	5	4	9	8	8	8	3	6	5	8	6	9	9	1	1	7		yes y+ gc
B1919- 9	7	5	4	7	5	4	5	5	6	7	8	9	9	9	0	0			yes y+
Salem	8	4	4	4	8	8	3	5	7	7	9	7	9	8	0	0			ok+ y+ late slow early
NY T 88-19	8	5	7	7	8	7	2	4	6	6	9	9	9	9	0	0			ok y+ app- deep bud end
ATX85404-8w	8	5	6	8	8	7	3	5	6	6	7	7	9	7	2	0			ok+ y+ app-
Aquilon	8	4	5	8	8	7	4	7	7	7	8	6	9	9	0	0			yes y+ s+
AF1455-20	7	7	8	7	8	7	2	5	7	7	8	9	9	9	2	0			yes y+ late
NY U 75- 1	7	5	4	6	8	7	2	5	7	7	9	9	9	9	1	0			yes y+ hh
B1870-17	7	5	7	9	8	6	3	7	8	8	9	7	9	9	0	0			rhiz cr
NY T 27-21	8	5	7	8	8	7	2	5	7	7	8	9	9	9	0	0			yes y+ big early SG-
NY T 2- 2	8	5	6	7	8	8	4	6	7	7	7	9	8	9	0	0			yes y+ sg
B1884- 9	7	6	7	6	7	5	3	7	7	7	9	8	9	9	0	0			yes y+ late
NY T 35-34	8	5	7	9	8	7	3	6	6	6	8	9	9	9	8	0			yes y+ hh
NY U 85-12	7	4	4	5	8	7	2	5	7	7	9	8	9	9	2	0			yes y+ hh
B1806- 8	7	4	4	6	8	7	4	6	7	7	8	7	9	9	2	0			ok+ yf5 gc
NDTX4930-5W	7	6	5	8	8	8	4	6	6	6	7	9	9	9	2	0			no so-so
B1880- 6	7	5	7	9	8	6	4	6	8	8	8	8	9	9	4	0			yes hh y+
B1870- 3	7	6	6	8	8	6	4	7	7	7	8	6	9	9	0	0			ok+ gc rhiz cr
B1826- 1	7	6	7	8	8	8	4	5	6	6	7	8	7	9	1	0			ok+ app- gr
NY T 20-15	8	5	6	8	8	6	2	6	6	6	9	9	9	9	1	0			ok deep bud end d-eyes

New Jersey Table 8. Continued.

Variety	PLANT			TUBER CHARACTERS							TUBER DEFECTS(2)								Over All	Comments
	P	A	a p	M	S	C	T	S	D	T	S	G	H	S	B	H	N	R		
NY U109- 6	7	5		5	9	8	7	2	6	7		8	9	9	8	4	0		yes	y+ hh
NY 120	6	7		7	9	7	5	2	6	7		9	9	9	9	0	0		yes	heavy net y+ pale gr
NY U 47-21	7	6		8	9	8	8	3	6	8		9	9	9	9	2	0		ok+	app+ hh
NY T 3- 5	7	7		7	6	8	7	2	7	6		9	7	9	7	0	0		ok	s+ sb- late app-
COTX90046-5w	7	7		7	6	8	6	4	6	7		8	8	9	9	4	0		yes	SG+ hh defects
B1871- 1	7	3		3	8	8	7	3	7	8		9	9	9	9	1	0		yes	best one 4plts
NY 124	8	5		6	9	8	8	2	5	6		8	9	9	9	2	0		no	app- hh deep bud end
MN 19336	8	5		7	8	7	8	7	4	6		7	7	9	9	0	0		no	app- sg gc
B1880- 4	8	4		7	8	8	8	3	7	8		8	9	9	9	2	1	8	ok+	y- app+ slow early
Envol	7	-		1	8	8	7	5	5	6		6	9	9	9	0	0		ok	so-so
NY 102	7	6		4	8	8	8	3	6	7		8	9	9	9	0	0		ok	y- pale gr leaves
NY U 47- 2	7	5		6	9	8	7	5	5	5		6	9	9	9	1	0		no	y- app-
Tx1674- 1W	7	5		7	6	8	6	6	4	5		8	8	9	9	4	0		no	hh pink eye app-
MN 19157	7	2		3	9	8	7	3	6	7		9	5	9	9	2	0		no	s- y- gc
B1944- 2	7	3		7	9	8	7	8	7	4		5	8	9	9	0	0		no	app- sg
AF1565-12	8	8		8	3	8	8	3	7	7		8	7	9	9	2	0		no	y- hh late
AF1764- 3	7	9		9	8	8	8	3	5	7		8	6	9	9	0	0		no	y- gc
AF2061- 2	7	-		1	6	5	8	8	6	5		7	9	5	9	0	0		no	y- hs gc

(1) See NJ Rating Table for plant and tuber characters, tubers defects and chip color ratings.

(2) HH = No. of hollow heart tubers out of 40. HN = No. of heat necrosis tubers out of 40 cut.

New Jersey Table 9. Yields, specific gravities, and tuber sizes for 16 round potato varieties, harvested late season and grown on a silt loam soil at the Snyder Agricultural Research & Extension Farm near Pittstown, NJ -2001 (1).

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield % of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)		
					1	7/8	2 1/2		1	2	3 4 5
NY 112	ny	665	621	144	99	88		5	1	10	37 46 5
Atlantic	ne	558	521	120	98	83		5	2	15	43 35 5
Reba	ct	532	495	114	99	82		6	1	17	45 35 2
Eva	ne	535	489	113	99	85		7	1	14	38 44 3
Katahdin	ne	530	464	107	98	84		10	2	14	39 42 3
B1240- 1	cf	545	459	106	98	86		14	2	13	33 47 6
B0766- 3	cf	498	457	105	98	79		7	2	20	45 34 0
Kennebec	ne	615	454	105	98	75		25	2	23	34 39 2
W1313	ne	513	454	105	97	74		9	3	23	46 28 0
AF1615- 1	ne	505	450	104	97	78		8	3	20	43 35 1
NY 115	ne	478	448	104	97	68		4	3	30	50 17 1
Superior	ne	473	433	100	98	70		7	2	28	46 24 0
B0564- 8	cf	473	432	100	96	61		5	4	35	45 17 0
Salem	ny	461	425	98	98	82		6	2	16	37 41 4
AF1921- 4	me	430	388	90	97	76		7	3	21	39 35 2
B0564- 9	cf	415	384	89	96	67		4	4	30	40 25 1
CV (4)		11	12	.557							
W-D Bayes LSD.05		79	82	.008	2	9		6	2	9	7 10 4

(1) Plots were planted on 5/03, vine killed on 9/06 and harvested on 9/17.

(2) cf = USDA Chapman Farm, ct = Certified Seed, me = Univ. of Maine, ne = NE Regional Proj., ny = Cornell Univ.

(3) Size 1= <1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= >4".

(4) CV=Coef of variation; W-D Bayes LSD.05=Waller Duncan test for least significant difference.

New Jersey Table 10. Plant and tuber characters, tuber defects, and overall rating for varieties and seedlings grown near Pittstown, NJ 2000 (1).

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS(2)										Over		Comments
	P a	A p	M t	S s	C l	T x	S h	D p	T a	S	G	H	S	B	H	H	N	R	All		
NY 112	8	7	6	7	7	6	2	8	8	9	9	9	9	9	7	0	0	yes	hh app+		
Atlantic	8	7	6	6	7	6	2	7	7	9	8	9	9	9	16	1	7	std	hh		
Eva	7	6	6	8	8	8	3	6	8	8	8	9	7	2	0	0	yes	hh 1bc app+	sb-		
Reba	8	3	4	9	8	8	5	7	6	8	8	9	9	5	0	0	yes	hh app-			
B1240- 1	7	8	9	4	7	6	3	6	6	7	6	9	9	9	18	0	0	ok	hh gc		
B0766- 3	7	7	6	8	7	6	4	6	7	8	8	9	9	6	0	0	yes	app+			
Kennebec	8	8	7	3	8	8	6	3	2	5	4	9	9	2	0	0	std	gc sg gr app-			
W1313	7	7	7	3	7	5	2	7	7	7	9	9	9	2	1	6	yes	vlate			
Katahdin	8	5	6	6	8	8	3	5	7	8	8	9	9	9	7	0	0	std	hh		
AF1615- 1	7	6	8	5	8	8	3	6	7	9	9	9	9	7	0	0	ok+	late hh green			
NY 115	8	3	4	9	8	8	2	4	5	8	8	9	9	2	2	7	ok-	app-			
B0564- 8	7	6	5	9	7	6	2	8	8	9	9	9	7	0	0	0	yes	app+ rhiz cr			
Superior	7	5	3	9	7	6	3	7	7	9	9	9	9	5	0	0	std	hh deep eyes			
Salem	7	5	6	4	8	8	3	5	7	9	7	9	7	0	0	0	ok+	gc			
AF1921- 4	8	6	7	8	8	7	4	5	7	7	8	9	9	3	1	6	ok-	hh hn sg gc			
B0564- 9	8	6	4	9	8	7	3	5	6	9	7	9	7	29	0	0	ok-	hh nice early			

(1) See NJ Rating Table for plant and tuber characters, tuber defects and chip color ratings.

(2) HH = No. of hollow heart tubers out of 40. HN = No. of heat necrosis tubers out of 40 cut.

New Jersey Table 11. Yields, specific gravities, and tuber sizes for 23 specialty potato varieties, harvested late season and grown on a silt loam soil at the Snyder Agricultural Research & Extension Farm near Pittstown, NJ-2001 (1).

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)				
						1	7/8	2 1/2		1	2	3	4	5
AF2230- 2	me	648	584	135	1.071	97	84		7	3	13	32	47	4
B1425- 9	ne	616	558	129	1.093	97	77		7	3	21	38	39	0
NDTX4304-1R	tx	591	538	124	1.053	98	69		7	2	29	47	21	1
B1758- 4	cf	595	527	122	1.069	96	59		8	4	37	47	12	0
W97-4290-1	me	662	493	114	1.058	94	62		21	6	32	42	20	0
B2033- 3	cf	555	459	106	1.081	93	42		11	7	52	40	2	0
NDTX4271-5R	tx	507	457	105	1.063	96	69		7	4	27	36	33	1
AF2230- 5	me	475	427	99	1.069	99	94		9	1	5	24	60	10
MN 19528	mn	466	416	96	1.062	93	60		4	7	33	45	16	0
AF2151- 1	me	443	402	93	1.070	97	66		6	3	30	48	18	0
B1816- 5	cf	454	393	91	1.067	93	41		7	7	52	32	9	0
B1951- 5	cf	518	382	88	1.077	93	39		21	7	54	23	15	0
B1758- 3	cf	448	357	82	1.065	93	63		15	7	30	42	21	0
Yellow Finn	ct	398	350	81	1.081	95	65		8	5	30	40	25	0
B2021- 3	cf	434	324	75	1.070	83	15		10	17	69	14	1	0
B2017- 2	cf	418	322	74	1.079	85	33		9	15	51	25	9	0
B1752- 5	cf	385	311	72	1.073	95	71		15	5	24	53	18	0
German														
Butterball	ct	380	310	71	1.076	84	35		3	16	49	33	2	0
B1952- 4	cf	353	300	69	1.080	90	50		5	10	40	43	7	0
B2027- 2	cf	254	219	51	1.086	87	30		2	13	58	29	1	0
AF2138- 1	me	280	217	50	1.069	78	10		1	22	68	10	0	0
B2021-12	cf	293	188	43	1.067	66	6		3	34	61	6	0	0
Peanut	ct	256	80	19	1.080	37	4		16	63	33	4	0	0

(1) Plots were planted on 5/03, vine killed on 9/06 and harvested on 9/17.

(2) cf = USDA Chapman Farm, ct = Certified Seed, me = University of Maine,

mn = Univ. of Minnesota, ne = NE Regional Proj. 184, and tx = Texas A&M.

(3) Size 1= <1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= >4".

New Jersey Table 12. Plant and tuber characters, tuber defects, and overall rating for varieties and seedlings grown near Pittstown, NJ 2001 (1).

Variety	PLANT			TUBER CHARACTERS							TUBER DEFECTS (2)							Over All	Comments		
	P	A	a	M	S	S	C	T	S	D	T	S	G	H	S	B	H			N	R
AF2230- 2	8	7		6	6	6	1	8	2	5	5	9	9	9	9	9	0	1	7	no	purple2 app- y+
B1425- 9	7	4		5	8	7	7	7	3	6	7	7	7	8	9	9	1	0		yes	yf5 y+ sg
NDTX4304-1R	7	5		6	7	7	2	8	4	7	6	8	5	9	9	9	0	0		ok	red7 y+ gc s+ app-
B1758- 4	8	3		6	7	7	2	8	3	5	7	8	6	9	9	9	4	0		ok+	red7 y+ hh gc
W97-4290-1	7	8		8	7	7	1	8	4	5	5	4	4	9	9	9	0	0		no	purple3 app- y+
B2033- 3	8	4		6	7	7	2	6	5	6	6	7	8	9	9	9	0	0		ok	red y+ net
NDTX4271-5R	7	-		1	8	2	2	8	3	6	7	8	8	9	9	9	0	0		yes	red8 deep eye app+
AF2230- 5	8	5		6	2	2	1	8	4	6	5	8	8	9	9	9	0	0		no	purple4 app- y+
MN 19528	8	-		2	8	2	1	8	3	6	7	9	9	9	9	9	0	0		yes	red8 y+
AF2151- 1	7	5		7	6	1	1	8	3	5	5	8	9	9	9	9	0	0		no	purple2 app- y+
B1816- 5	8	4		6	6	6	1	7	3	6	7	8	8	9	9	9	1	0		ok-	purple y-
B1951- 5	8	2		7	8	2	2	8	7	6	5	8	6	5	9	9	0	0		no	purple6 hs gc app-
B1758- 3	7	4		7	6	7	2	8	3	5	6	7	5	9	9	9	4	0		no	red7 gc hh app-
Yellow Finn	8	7		6	8	7	7	7	3	5	6	7	9	9	9	9	0	0		ok+	yf5 app-
B2021- 3	6	3		6	7	7	2	8	3	7	6	6	8	9	9	9	0	0		ok-	red8 s- sg
B2017- 2	7	4		8	7	7	2	8	3	6	6	6	7	9	9	9	0	0		no	red5 s- sg gc
B1752- 5	7	3		6	8	7	7	8	2	6	6	8	9	8	9	9	5	0		no	hh app-
German																					
Butterball	7	7		6	8	7	7	6	4	6	7	8	8	9	9	9	1	5	6	no	yf8 heat necrosis
B1952- 4	7	2		7	6	2	2	7	2	7	7	9	9	9	9	9	0	0		ok-	red6 y- s-
B2027- 2	7	6		7	6	7	2	8	2	7	7	8	9	9	9	9	0	7	4	no	red7 hn y-
AF2138- 1	7	-		2	8	1	1	8	4	6	6	8	9	9	9	9	1	0		ok-	purple7 y-
B2021-12	7	6		7	6	2	2	8	2	7	7	7	6	9	9	9	0	1	7	no	red8 s- hn
Peanut	8	7		7	8	7	7	8	9	7	5	5	9	7	9	9	0	0		no	yf3 sg s-

(1) See NJ Rating Table for plant and tuber characters, tuber defects and chip color ratings.
(2) HH = No. of hollow heart tubers out of 40. HN = No. of heat necrosis tubers out of 40 cut.

New Jersey Table 13. Yields, specific gravities, and tuber sizes for 20 specialty potato varieties, harvested late season and grown on a silt loam soil at the Snyder Agricultural Research & Extension Farm near Pittstown, NJ -2001(1).

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (3)		
						1	7/8	2 1/2		1	2	3 4 5
B1523- 4	cf	682	633	146	1.071	97		72	4	3	25	40 29 2
B1425- 9	cf	579	522	121	1.083	97		81	8	3	17	38 41 2
Chieftain	ne	563	508	117	1.061	97		75	7	3	22	39 32 4
NDTX 731-1R	tx	545	487	112	1.057	95		72	5	5	23	37 32 2
CO86218-2	ne	549	480	111	1.069	94		64	7	6	30	44 18 1
B1952- 2	cf	467	439	101	1.072	99		75	5	1	23	51 24 0
B1763- 4	cf	457	434	100	1.069	97		68	2	3	29	42 23 2
MN 17993	mn	478	432	100	1.064	95		68	5	5	28	40 26 2
Norland	cf	424	379	87	1.054	97		67	8	3	30	53 14 0
B1521- 2	cf	424	374	86	1.069	92		68	4	8	25	38 29 0
Dark Red												
Norland	ne	404	370	86	1.057	96		52	4	4	43	42 10 0
Penta	ct	455	366	85	1.071	94		65	16	6	29	32 32 1
Yukon Gold	ne	382	334	77	1.065	98		81	11	2	17	44 34 3
Redsen	cf	341	307	71	1.057	96		67	7	4	29	49 17 1
MN 19055	mn	357	276	64	1.064	84		31	9	16	53	27 3 0
Divina	ct	366	225	52	1.058	88		52	31	12	36	25 25 2
French												
Fingerling	ct	347	156	36	1.078	58		8	23	42	50	8 0 0
Seiglinde	ct	269	138	32	1.072	59		7	17	41	52	7 0 0
Austrian												
Crescent	ct	323	134	31	1.087	46		10	15	54	36	9 1 0
Banana	ct	253	81	19	1.082	35		7	13	65	29	7 0 0
CV (4)		16	18		.341							
W-D Bayes	LSD.05	92	80		.005	7		7	7	7	7	7 2

- (1) Plots were planted on 5/03, vine killed on 9/06 and harvested on 9/17.
 (2) cf = USDA Chapman Farm, ct = Certified Seed, mn = Univ. of Minnesota, ne = NE Regional Proj., and tx = Texas A&M.
 (3) Size 1= <1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= >4".
 (4) CV=Coef of variation; W-D Bayes LSD.05=Waller Duncan test for least significant difference.

New Jersey Table 14. Plant and tuber characters, tuber defects, and overall rating for varieties and seedlings grown near Pittstown, NJ 2001 (1).

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS(2)										Over		Comments
	P	A	M	S	C	T	S	D	T	S	G	H	S	B	H	N	R	H	All		
B1523- 4	9	4	4	8	2	6	3	6	7	8	8	8	9	9	0	0	0	yes	red7 eb5 y+		
B1425- 9	7	5	5	8	8	7	3	7	7	8	9	9	9	9	7	1	8	ok+	yf?		
Chieftain	8	4	4	7	2	8	3	5	7	6	6	7	9	9	0	5	6	std	red4 eb6 lbc hn		
NDTX 731-1R	8	2	1	7	2	8	2	7	7	9	7	9	9	9	1	0	0	yes	red8 gc		
CO86218-2	8	4	6	6	2	8	3	6	7	9	8	9	9	9	1	0	0	ok+	red8 eb6 stems		
B1952- 2	7	4	7	4	1	8	5	6	7	8	6	9	9	9	0	0	0	yes	pur6 eb6 lect gc		
B1763- 4	7	5	8	5	1	8	5	7	7	9	8	9	9	9	2	0	0	yes	pur8 eb8 y+		
MN 17993	7	2	2	7	2	8	3	5	6	9	7	9	9	9	0	0	0	no	red7 eb2 app-		
Norland	7	2	2	6	1	8	4	6	6	8	6	8	9	9	2	0	0	std	red7		
B1521- 2	8	3	6	6	2	7	1	8	8	9	8	9	9	9	3	0	0	yes	red8 eb8 app+ gc		
Dark Red																					
Norland	7	1	2	9	2	8	3	6	7	8	7	9	9	9	4	0	0	std	red8		
Penta	7	6	6	8	8	8	3	7	3	3	7	9	9	9	4	1	7	no	eb8 pink eye app-		
Yukon Gold	8	5	3	8	8	8	3	6	6	8	7	9	9	9	24	0	0	std	eb6 lbc hh app-		
Redsen	6	2	2	8	1	8	2	8	7	8	9	9	9	9	0	0	0	yes	red8 eb6 y-		
MN 19055	8	-	2	9	2	7	2	7	5	8	9	9	9	9	5	0	0	no	red8-3 eb4 app-		
Divina	7	8	7	4	8	8	8	3	3	3	8	6	9	9	0	0	0	no	eb8 pink eye sg		
French																					
Fingerling	7	8	7	6	1	8	8	6	5	5	5	9	9	9	1	6	6	??	fl red4 eb8		
Seiglinde	8	5	7	6	8	8	8	8	2	1	9	9	7	7	3	0	0	no	eb7 app-		
Austrian																					
Crescent	9	7	6	9	8	8	9	7	5	4	9	9	9	9	1	1	5	??	fl eb3 y-		
Banana	8	8	8	7	8	8	9	6	4	2	8	9	9	9	0	0	0	no	fl eb3 y-		

(1) See NJ Rating Table for plant and tuber characters, tuber defects and chip color ratings.
(2) HH = No. of hollow heart tubers out of 40. HN = No. of heat necrosis tubers out of 40 cut.

New Jersey Table 15. Yields, specific gravities, and tuber sizes for 16 russet potato varieties, harvested late season and grown on a sandy loam soil at the Snyder Agricultural Research & Extension Farm near Pittstown, NJ - 2001(1).

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield cwt/a	% of Sup.	Spec. Grav.	% O v e r		% Culls	% Tuber Sizes (4)				
						4 oz	8 oz		1	2	3	4	5
Tx1385-12Ru	tx	767	686	186	1.074	95	83	5	5	11	34	29	20
Stampede	tx	566	498	135	1.059	89	60	2	11	29	26	20	15
B2049- 2	cf	516	472	128	1.071	95	75	3	5	20	35	28	12
B1933- 3	cf	491	436	118	1.078	89	45	1	11	45	31	11	3
B2059- 2	cf	445	397	108	1.078	93	65	4	7	28	21	25	18
AF2133-17	me	453	393	107	1.068	88	68	2	12	20	26	24	18
AF2174- 3	me	512	379	103	1.075	88	68	15	12	20	26	12	30
Superior	ne	489	368	100	1.070	85	46	11	15	38	20	13	14
AF1866- 8	me	400	363	99	1.064	93	74	2	7	19	25	22	27
B2035-11	cf	402	331	90	1.065	89	53	7	11	35	36	14	4
B2035-14	cf	450	300	82	1.074	90	56	25	10	33	20	19	18
B2035-13	cf	396	296	80	1.059	82	57	9	18	25	30	24	3
B2056-14	cf	285	247	67	1.059	87	47	1	13	41	35	9	2
MN 19315	mn	442	237	64	1.081	59	22	9	41	37	18	3	2
B2048- 4	cf	175	129	35	1.069	79	30	7	21	49	18	0	12
Tx1385-12Ru	tx	767	686	186	1.074	95	83	5	5	11	34	29	20

(1) Plots were planted on 5/03, vine killed on 9/06 and harvested on 9/17.

(2) cf = USDA Chapman Farm, me = University of Maine, mn = Univ. of Minnesota, ne = NE Regional Proj. 184 and tx = Texas A&M Univ.

(3) Size 1= <1 7/8", S2= 1 7/8 to 2 1/2", S3= 2 1/2 to 3 1/4", S4= 3 1/4 to 4", and S5= >4".

New Jersey Table 16. Plant and tuber characters, tuber defects, and overall rating for varieties and seedlings grown near Pittstown, NJ 2001 (1).

Variety	PLANT			TUBER CHARACTERS							TUBER DEFECTS(2)					Over All Comments					
	P	A	a	M	S	S	C	T	S	D	T	S	G	C	S		B	H	H	N	R
Tx1385-12Ru	7	6	8	5	5	6	7	7	6	5	8	9	9	9	9	9	1	0	0	no app-	
Stampede	7	5	7	9	5	5	3	8	7	8	8	9	9	9	9	9	0	0	0	yes y+ app+	
B2049- 2	5	5	6	9	6	6	5	6	7	8	9	9	9	9	9	9	0	3	7	yes y+	
B1933- 3	8	5	4	9	5	5	4	6	6	6	9	9	9	9	9	9	1	0	0	ok+ y+	
B2059- 2	7	6	8	8	5	4	8	7	7	7	9	9	9	9	9	9	0	0	0	yes nice rus	
AF2133-17	8	3	8	9	4	4	6	5	6	6	8	8	9	9	9	9	0	0	0	ok y+ so-so	
AF2174- 3	8	7	4	7	5	3	7	6	6	6	6	9	9	9	9	9	3	0	0	no sg hh vari	
Superior	6	6	3	8	7	6	5	5	5	7	8	8	8	9	9	9	2	0	0	std hh flat	
AF1866- 8	7	-	2	8	5	3	8	6	7	7	8	8	9	9	9	9	0	0	0	ok	
B2035-11	7	6	3	8	5	3	9	7	6	6	7	7	9	9	9	9	3	0	0	lbc sg gc	
B2035-14	8	7	7	8	5	4	7	7	6	6	4	9	8	9	9	9	4	0	0	no sg y- hh	
B2035-13	7	4	3	8	5	3	7	6	6	6	8	5	9	9	9	9	0	0	0	no gc app-	
B2056-14	6	7	7	9	5	3	8	6	7	7	9	9	9	9	9	9	0	0	0	no y-	
MN 19315	7	6	3	8	7	7	4	6	6	6	8	8	9	9	9	3	1	1	4	no y- sb-	
B2048- 4	5	3	5	8	5	5	5	6	7	7	9	9	9	9	9	9	0	2	6	no y- hn	
Tx1523- 1Ru	7	-	2	5	5	5	6	3	6	5	8	9	9	9	9	9	0	0	0	no app-	

(1) See NJ Rating Table for plant and tuber characters, tuber defects and chip color ratings.
(2) HH = No. of hollow heart tubers out of 40. HN = No. of heat necrosis tubers out of 40 cut.

New Jersey Table 17. Yields, specific gravities, and tuber sizes for 12 russet potato varieties, harvested late season and grown on a sandy loam soil at the Snyder Agricultural Research & Extension Farm near Pittstown, NJ -2001(1).

Variety Name	Seed Source (2)	Total Yield cwt/a	Market Yield % of Sup.	Spec. Grav.	% O v e r			% Culls	% Tuber Sizes (4)				
					4 oz	8 oz			1	2	3	4	5
B1409- 2	ne	572	521	142	94	73		4	6	21	26	21	26
B1409- 2	cf	560	504	137	93	68		3	7	24	27	25	16
AO87277- 6	or	534	468	127	95	72		8	5	23	29	21	22
ATX84706-2Ru	tx	522	461	125	96	84		8	4	13	19	23	42
Amey	cf	479	425	116	95	73		6	5	22	25	28	20
A 90586-11	or	524	409	111	90	66		13	10	25	27	18	20
Russet													
Burbank	ne	554	354	96	89	46		28	11	43	34	10	2
Gem Russet	ne	416	352	96	90	59		8	10	31	35	16	8
Russet													
Norkotah	ne	391	340	92	90	58		4	10	32	28	15	15
TXNS 296	tx	419	328	89	85	47		9	15	39	23	11	12
AF1753-16	ne	544	284	77	94	68		45	6	26	33	17	19
MN 18153	mn	340	268	73	83	48		5	17	34	25	15	8
CV (4)		12	17										
W-D Bayes	LSD.05	81	93		5	9		7	5	7	9	6	9

(1) Plots were planted on 5/03, vine killed on 9/06 and harvested on 9/17.

(2) cf = USDA Chapman Farm, mn = Univ. of Minnesota, ne = NE Regional Proj., or = Oregon State University and tx = Texas A&M Univ.

(3) Size 1 = <4 oz, S2 = 4 to 8 oz, S3 = 8 to 12 oz, S4 = 12 to 16 oz, and S5 = >16 oz.

(4) CV=Coef of variation; W-D Bayes LSD.05=Waller Duncan test for least significant difference.

New Jersey Table 18. Plant and tuber characters, tuber defects, and overall rating for varieties and seedlings grown near Pittstown, NJ 2001 (1).

Variety	PLANT			TUBER CHARACTERS					TUBER DEFECTS (2)										Comments
	P	A	M	S	C	T	S	D	T	S	G	H	S	B	H	N	R	Over	
	a	p	t	s	l	x	h	p	a	G	C	S	B	H	H	N	R	All	
B1409- 2	8	6	5	9	5	4	7	5	7	9	8	8	9	9	0	0	0	no	y+ app-
B1409- 2	7	6	7	9	5	4	6	5	7	9	9	9	9	9	2	0	0	no	y+ app-
AO87277- 6	8	7	6	8	5	4	8	6	7	7	9	9	9	9	20	0	0	ok	hh app+ eb
ATX84706-2Ru	7	5	4	9	5	4	7	6	7	8	6	9	9	9	14	0	0	no	too big hh gc
Amey	7	6	7	9	5	3	7	5	6	8	8	9	9	9	15	0	0	ok	app- vari
A 90586-11	8	7	7	5	7	5	8	7	6	5	7	9	9	9	7	0	0	ok-	hh sg
Russet																			
Burbank	8	8	7	7	5	3	9	7	6	3	8	9	9	9	8	0	0	std	lbc hh sg app-
Gem Russet	8	7	6	9	5	4	8	7	8	7	9	7	9	9	7	1	7	yes	hh app+
Russet																			
Norkotah	8	6	4	8	5	3	8	7	7	8	9	9	9	9	7	0	0	std	hh eb
TXNS 296	7	6	7	8	5	3	8	7	7	8	9	9	9	9	8	0	0	ok	lbc hh sg eb
AF1753-16	7	6	8	5	5	4	8	5	4	3	6	9	9	9	1	0	0	no	sg gc app-
MN 18153	7	7	7	7	5	3	7	7	6	9	8	9	7	7	0	0	0	no	a-hide y-

(1) See NJ Rating Table for plant and tuber characters, tuber defects and chip color ratings.

(2) HH = No. of hollow heart tubers out of 40. HN = No. of heat necrosis tubers out of 40 cut.

New Jersey Rating Table. Abbreviations and ratings for plant and tuber characteristics, tuber defects, chip color, and comments.

<u>Plant</u>		<u>Air</u>		<u>Vine</u>	
<u>Pa = Appearance</u>		<u>Ap = Pollution</u>		<u>Mt = Maturity</u>	<u>SS = Skin Set</u>
1 = Very poor		1 = Dead		1 = Very Early	1 = None left
2 =		2 =		2 = Early	2 =
3 = Poor		3 = Mod. Defol		3 =	3 = most gone
4 =		4 =		4 = Med Early	4 =
5 = Fair		5 = Mod Injury		5 = Medium	5 = half left
6 =		6 =		6 = Med Late	6 =
7 = Good		7 = Mild Injury		7 =	7 = most left
8 =		8 =		8 = Late	8 =
9 = Excellent		9 = No Symptoms		9 = Very Late	9 = All left

<u>Tuber</u>		<u>Tuber</u>	
<u>Cl = Color</u>		<u>Tx = Texture</u>	<u>Sh = Tuber Shape</u>
1 = Purple		1 = Part Rus	1 = V. Round
2 = Red		2 = Heavy Rus	2 = Round
3 = Pink		3 = Mod. Rus	3 = Round-obl.
4 = Dark Br.		4 = Light Rus	4 = Mostly Obl.
5 = Brown		5 = Netted	5 = Oblong
6 = Tan		6 = Sl. Netted	6 = Mostly Obl.
7 = buff		7 = Mod. Smooth	7 = Mostly Long
8 = White		8 = Smooth	8 = Long
9 = Br. White		9 = V. Smooth	9 = Cylindrical

<u>Tuber</u>		<u>Rating for</u>	
<u>Ta = Appearance</u>	<u>Tuber Defects</u>	<u>Tuber Defects</u>	<u>CC = Chip Color</u>
1 = Very Poor	SG = Second Growth	1 = 100%	1 = Paper white
2 =	GC = Growth Cracks	2 = 76 to 99%	2 =
3 = Poor	HS = Heat sprouts	3 = 51 to 75%	3 =
4 =	SB = Scab	4 = 26 to 50%	4 = Acceptable
5 = Fair		5 = 11 to 25%	5 = Borderline
6 =		6 = 6 to 10%	6 = Unacceptable
7 = Good		7 = 3 to 5%	7 =
8 =		8 = 1 to 2%	8 =
9 = Excellent		9 = none	9 = Black Chip

<u>Tuber</u>		<u>Comments</u>	
<u>HH = No. of Hollow Heart Tubers</u>		hn = heat necrosis	
<u>HN = No. of Heat Necrosis Tubers</u>		hh = hollow heart	
<u>R = Heat Necrosis rating</u>		bc = brown center	
1 = Very Severe		y = yield	
2 =		s = size	
3 = Severe		app = tuber appearance	
4 =		ch = chip color	
5 = Unacceptable		gc = growth cracks	
6 = Borderline ok		gr = greening	
7 = Slight		sg = second growth	
8 = Very Slight		sb = scab	
9 = none		ac = air cracks	

NEW YORK-BREEDING

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The Cornell potato breeding program seeks to serve the potato industry of NY and neighboring states by developing new varieties that are adapted to the local environment and meet the evolving needs of growers, processors and consumers alike. Most of our current variety development is aimed at developing round white potatoes for chipping and tablestock markets.

Descriptions of the most advanced clones currently being evaluated follow below.

Marcy = NY112 (P7-19) = Atlantic x Q155-3 (1990). Late maturity chipstock. Very scurfy skin texture, but attractive round to oblong shape. Outstanding yield. In upstate trials, the marketable yield relative to Atlantic was 128% in 1996 (5 trials), 117% in 1997 (6 trials), 117% in 1998 (5 trials), 117% in 1999 (6 trials), 113% in 2000 (6 trials), and 129% in 2001 (6 trials). The overall average is 120% in 34 upstate trials. In seven states in the SFA trials in 1998, NY112 yielded 117% of Atlantic and 130% of Snowden; in 1999 the US No. 1 yield in the SFA trials was 107% of Atlantic and 145% of Snowden; in 2000 the yield was 112% of Atlantic and 130% of Snowden. In eight county trials in PA in 1998, NY112 yielded 134% of Atlantic; in four trials in 1999 it yielded 108% of Atlantic; and in four trials in 2000 it yielded 108% of Atlantic. In 1998 and 1999, the yield was 119% of Katahdin at Riverhead. Over six years our early harvest yield has been 101% of Superior. Large tuber size. Generally free of pickouts due to external defects. There has been a small percentage of internal defects, primarily hollow heart, but less than in Atlantic. Hollow heart was greater than in Atlantic in Ellis Hollow in 2000, but tuber size was very large. Internal necrosis has been a problem at Riverhead, New Jersey and North Carolina. March 2000 Agron scores from 1999 crop samples stored in Steuben and Wyoming county grower facilities were 66 and 57 for NY112 and 63 and 60 for Snowden, respectively. The average Agron scores for two Tompkins County locations

and three dates from 45°F storage over the past five years were 52 for NY112, 50 for Monona, and 52 for Snowden. The visual ratings for five years averaged 3.2 for NY112 and 2.3 for Snowden. In PA in 1998, the average score at ten locations for NY112 at 45°F storage was 2.4 for NY112 and 2.2 for Snowden. Specific gravity is 0.008 less than Atlantic (46 trials), 0.012 greater than Monona. The tuber dormancy is about the same as Snowden. Large vines. White flowers. Scab resistance like Superior. Susceptible to blackspot bruise. Data from Dr. Greg Porter in Maine suggest that NY112 may be moderately susceptible to the herbicides metribuzin and rimsulfuron. Resistant to race Ro1 of the golden nematode. The outstanding yield, scab resistance, and respectable chip color and specific gravity make this a promising prospect for a chipping variety.

NY115 (P23-31) = Pike x NY88 (1990). Medium maturity dual purpose chipstock and tablestock. The tubers have a smooth bright white skin, shallow eyes, and slightly flattened shape. In three to five trials in Tompkins County each year, NY115 yielded 101% of Atlantic in 2001, 84% in 2000, 96% in 1999, 83% in 1998, and 82% in 1997. In Steuben and Wyoming counties, NY115 yielded 76% of Atlantic in 2001, 68% in 2000, 75% in 1999, 92% in 1998, and 92% in 1997. At Riverhead in 1999 and 2000, NY115 yielded an average of 109% of Katahdin in three trials. In two years of Snack Food Association trials in 7 states, NY115 yielded 84% of Atlantic. In 5 trials in PA in 1998, the yield was 86% of Atlantic. Usually, the tuber set is below trial average and the tuber size is above trial average. In spacing trials in Ithaca in 1998, the marketable yield at 6" spacing was increased by 11% over 9.3" spacing. In 1999, the increase was 6%. In 2000, the yield of NY115 was 96% of Atlantic at 6" and 90% at 9.3". In 2001, marketable yield at 6.6" was 11% greater than at 8.2". At Freeville in 1998 and 1999, there was almost no effect on yield, but there was a shift in size distribution. At Riverhead in 1999, the 6" spacing yielded 4% more than the 9" spacing. Yellow plants have been observed at emergence, particularly in cold, wet springs. In 1999, the same characteristic was observed on Long Island, Freeville, and Ellis Hollow in plots that had received no herbicide. At Freeville, the yield was not affected by type of herbicide. NY115 sizes early. Marketable yield at the end of July in Ithaca is 104% of Superior (6 years). It is generally free of pickouts and internal defects. The chip color is very good from the field and 45°F storage. In five years, tubers of NY115 from Ithaca and Harford, chipped December,

January, and February after 45°F storage, scored an average of 2.1 compared to 2.6 for Snowden and 4.5 for Monona. The average Agtron scores in the same trials were 55 for NY115, 52 for Snowden, and 49 for Monona. The specific gravity is 0.011 less than Atlantic (34 trials, 6 years). The reaction to scab in most years has been like Atlantic. Resistant to race Ro1 of the golden nematode. White flowers. Good boiling properties. Good vine type. May be resistant to blackspot bruise (MI trial). NY115 produces attractive tubers and has the best chip color of any clone this program has developed to date, but yield in NY and PA is clearly of concern.

NY118 (P49-19R) = D191-103 x Chieftain (1990). Late season, light red tablestock. Marketable yield in twelve Tompkins County trials between 1996 and 2001 has averaged 94% of Chieftain. In two trials at Riverhead (1998 and 1999), NY118 averaged 103% of Chieftain. Tuber set and size of NY118 and Chieftain are similar. Few misshapen tubers and free of internal defects. Attractive, oval shape. Skin is slightly textured and susceptible to skinning. Eyes are sparse and very shallow. The intensity of color is similar to that of Chieftain. Flesh color is bright white before and after boiling. Specific gravity is 0.003 less than Chieftain (9 trials). Tuber dormancy is 3 weeks longer than Chieftain. Better scab resistance than Chieftain. Resistant to race Ro1 of the golden nematode.

NY120 (Q8-2) = Kanona x AF186-2 (1991). Mid-late season chipstock. Tubers have a very scurfy skin texture. Marketable yields at Ellis Hollow and Harford in 1996 and 1997 were 104% of Atlantic. In three other NY trials in 1997, the yield was 123% of Atlantic. In 1998, NY120 yielded 102% of Atlantic in 3 Tompkins County trials and 111% of Atlantic in Steuben and Wyoming Counties. In 1999, marketable yields were 99% of Atlantic in four Tompkins County trials and 96% of Atlantic in Steuben and Wyoming counties; in similar trials in 2000, the yields were 103% and 112%, respectively, while in 2001, yields averaged 108% and 100% of Atlantic. In the Ellis Hollow spacing trial in 1998, NY120 was especially responsive to closer spacing. At 6" it yielded 16% more than at 9". In a similar trial in 1999, the 6" spacing yielded only 2% more than the 9" spacing. At Freeville in 1999, the 6" and 9" spacing yields were essentially the same, though the tuber number and size were affected. In 2000 in Ellis Hollow, NY120 yielded the same at 6" and 9" spacing. In 2001, NY120 yielded 5% more at 6.6" than at 9.3". Early harvest yield has been equal to

Superior in three years out of five. Tuber set is generally less than Atlantic and average size is greater. Generally few pickouts and free of internal necrosis and hollow heart. Very nice vine type. Specific gravity is 0.004 less than Atlantic (27 trials). The chip score after 45°F storage (2 locations and 3 chip dates) averaged for the past four years was 3.3 for NY120, 4.5 for Monona, and 2.6 for Snowden. The Agtron scores were 52 for NY120, 50 for Monona, and 53 for Snowden. Average chip scores from Wise of Steuben and Wyoming crop samples in 1997, 1998, 1999 and 2000 were 3.6 for NY120, and 2.7 for Snowden. Tuber dormancy has been one to two weeks shorter than Atlantic. Scab resistance is between Superior and Monona. Vascular discoloration is sometimes observed at the stem end. May be susceptible to blackspot bruise (MI data). Resistant to race Ro1 of the golden nematode. With yields and specific gravity equal to Atlantic and fewer internal defects this looks like a potential chipping variety, especially from the field and December and January storage. Narrow spacing will be necessary to reduce tuber size.

NY121 (Q237-25) = N43-288 x E74-7 (1991). Mid-late season tablestock. Bright white skin. This clone is exceptional for its resistance to late blight and to four races of the cyst nematode (Ro1, Ro2, P4A, and P5A). It also appears to be resistant to PVY and has some resistance to scab. Yield is the primary issue. In 14 trials in Tompkins County over the past five years NY121 has yielded an average of 89% of Atlantic. In three trials at Riverhead, Long Island between 1998 and 2000 it yielded 80% of Katahdin. Between 1999 and 2001 early harvest yield was 86% of Superior. Tuber size is small. In 2000, at Freeville and Riverhead, spacing at 12" did not have much effect on yield and size. NY121 has few internal or external defects. The specific gravity is 0.009 less than Atlantic (11 trials). NY121 will not chip well. Scab reaction is between Monona and Superior. In Dr. Bill Fry's 1999, 2000 and 2001 Freeville late blight trials, NY121 had an average AUDPC score of 266 compared to 1412 for Kennebec, and 1840 for Atlantic. The smaller number is more resistant. This is exceptional resistance in a clone with this maturity. The tuber dormancy is 5 weeks longer than Atlantic or Katahdin. The apical eye and the stolon attachment are moderately recessed, and the overall shape is irregular but the bright skin improves the overall appearance. NY121 may be of value for limited, special circumstances, e.g. organic potato growers.

NY125 = S28-2 = Keuka Gold x Genesee (1993). Midseason tablestock. Pale yellow flesh, attractive oblong shape, slightly scurfy skin. In four Tompkins County trials in 2001 yields averaged 116% of Atlantic. In three similar trials in 2000 yields averaged 115% of Atlantic. Yield in 1999 averaged 110% of Atlantic (2 trials). At four sites in PA in 2000 yields averaged 86% of Atlantic. In early harvest trials in Ithaca from 1999 to 2001 it yielded 104% of Superior. Tendency for small tuber size. Some misshapen pickouts in 1999, not in 2000 or 2001. Generally few internal defects. Specific gravity is 0.013 less than Atlantic (11 trials). Dormancy is about two weeks shorter than Atlantic. Scab resistance is fair, similar to Atlantic. Good boiling quality - little after cooking darkening or sloughing. Poor chip color. Vine is medium size, white flowers, few fruits. Resistant to race Ro1 of the golden nematode.

NY126 = T2-2 = Keuka Gold x Pike (1994). Mid-late season chip and tablestock. Yellow flesh. Scurfy skin. In three or four trials per year in Tompkins County, T2-2 yielded an average of 103% of Atlantic in 1999, 113% of Atlantic in 2000, and 113% of Atlantic in 2001. In Steuben and Wyoming County trials yields of T2-2 averaged 95% of Atlantic in 2000 and 111% of Atlantic in 2001. At Riverhead, Long Island, T2-2 yielded 106% of Katahdin in 2000 and 115% of Katahdin in 2001. At four PA sites in 2000 T2-2 yielded 109% of Atlantic. Few pickouts. Low levels of internal defects. Specific gravity is 0.009 less than Atlantic (10 trials). Visual chip color score for 1998-2000 has averaged 4.3 for T2-2 and 2.9 for Snowden; Agtron scores in the same trials were 51 for T2-2 and 55 for Snowden. Good boiling properties: no after cooking darkening and only slight sloughing. Very good scab resistance, similar to Pike. Nice vines, white flowers. Tuber dormancy is two weeks longer than Atlantic. Resistant to race Ro1 of the golden nematode.

NY127 = T27-21 = Q237-8 x Pike (1994). Mid-season tablestock. High yielding clone with resistance to races Ro1 and Ro2 of the golden nematode. In three to four trials per year in Tompkins County, T27-21 yielded an average of 115% of Atlantic in 1999, 111% of Atlantic in 2000, and 120% of Atlantic in 2001. At four sites in PA in 2000 yields averaged 122% of Atlantic. In NJ in 2000 it yielded 132% of Atlantic. At Riverhead, Long Island yields were 105% of Katahdin in 2000 but only 88% of Katahdin in 2001. A small amount of pickouts due to growth cracks. Few internal

defects. Bright skinned, small to mid sized round tubers, some recessed apical eye. Specific gravity has averaged 0.018 less than Atlantic (10 trials). Does not chip. Scab susceptibility similar to Snowden. Nice dark green vine, white flowers. Dormancy is one week longer than Atlantic.

NY128 = T35-34 = NY121 x Pike (1994). Mid-season chipstock. Resistant to races Ro1 and Ro2 of the golden nematode. Also good resistance to late blight. In three to four trials per year in Tompkins County yields of T35-34 averaged 105% of Atlantic in 1999, 101% of Atlantic in 2000, and 110% of Atlantic in 2001. At Riverhead yields were 117% of Katahdin in 2000 and 119% of Katahdin in 2001. In Steuben and Wyoming counties in 2001 yields averaged 106% of Atlantic. At four sites in PA in 2000 yields were 104% of Atlantic. Few pickouts. Vascular discoloration is sometimes observed at the stem end. Specific gravity is 0.007 less than Atlantic (10 trials). Good chip color in 1999, fair color in 2000. Scab resistance similar to Atlantic. In Dr Fry's late blight tests in 2000 and 2001, the AUDPC score has averaged 382, compared to 1712 for Kennebec; the lower number is better. Tubers are round and uniform, similar in size to Snowden. Tuber dormancy is four weeks longer than Atlantic.

NY129 = T11-2 = N38-1 x ND2225-1R (1994). Late season red-skinned tablestock. Large round tubers with textured skin. In seven Tompkins County trials over the past three years yields have averaged 117% of Chieftain. In Riverhead trials in 2000 and 2001 yields averaged 110% of Chieftain. In one PA trial in 2000 the yield was 97% of Chieftain. A low frequency of pickouts due to growth cracks. Few internal defects (less than Chieftain). Specific gravity same as Chieftain (8 trials). Good boiling properties, tubers stay white and do not disintegrate. Good scab resistance, similar to Pike. Dark green vines with red/purple flowers. Tuber dormancy is three weeks longer than Atlantic. Resistant to race Ro1 of the golden nematode.

T15-1 = ND2225-1R x NY97 (1994). Early /mid-season red-skinned tablestock. High set of small, attractive, round tubers with dark red skin. In seven Tompkins County trials over the past three years yields averaged 86% of Chieftain. In 2000 and 2001 T15-1 yielded 67% of Chieftain at Riverhead. A few misshapen pickouts and no internal defects. Lenticels sometimes prominent. Flesh remains white after boiling and does not disintegrate. Specific gravity is 0.001 higher than Chieftain (7 trials). Scab

reaction in between Atlantic and Snowden. Vigorous vine with dark red flowers. Dormancy is one week longer than Atlantic. Resistant to race Ro1 of the golden nematode.

T88-19 = N142-72 x Pike (1994). Mid season tablestock. Possesses trichome-mediated resistance to insects. In seven Tompkins County trials over the past three years yields have averaged 95% of Atlantic. In Dr. Ward Tingey's insect resistance trials T88-19 exhibited only a 13% yield reduction when grown without insecticide in 1999, a 6% reduction in 2000, and no yield reduction at all in 2001. This compares to yield reductions of 32%, 40% and 37% for Atlantic when grown without insecticide, respectively. Few pickouts and almost no internal defects. Specific gravity is 0.010 less than Atlantic (7 trials). Poor chip color. Small to mid-sized tubers with bright skin. Very susceptible to scab, similar to Chippewa. Nice vine, pale purple flowers. Tuber dormancy is one week less than Atlantic. Resistant to race Ro1 of the golden nematode.

Long Island, New York

J. Sieczka and D. Moyer

Variety Evaluation and Development.

Experiments conducted in 2001 are part of an ongoing program evaluating promising potato clones under Long Island conditions. Thirty-four potato clones were evaluated in replicated experiments conducted at the Long Island Horticultural Research and Extension Center (LIHREC). In addition, 73 clones were included in an observation trial.

The randomized complete block design with four replications was used in the Cornell and USDA main season white-skinned and the red-skinned experiments. The NE184 experiment had three replications. Plot size for most plots were 2 (34") rows x 12'. Due to limited seed in the NE184 experiment, Envol, Yukon Gold and AF1938-3 plots were 1 row wide. The adjacent row was planted to Dark Red Norland. Fertilizer was applied at a rate of 1,000 lbs/A of 10-20-20 in bands at time of planting. An additional 60 lbs N/A were applied when plants were 4 to 6 inches tall. Seed spacing was 9.3 inches. Specific gravity was determined by the hydrometer method. Internal defects were determined on ten 3.25 to 4 inch tubers per replication.

NE184 White-skinned Clones: Entries producing the highest total yields were Katahdin, Aquilon, Kennebec, and AF1615-1. The highest marketable 2 to 4" yields were produced by Katahdin, Atlantic, Aquilon, AF1615-1 and AF1938-3. Tubers of Aquilon, Envol and Yukon Gold had the best appearance ratings. Tubers of Atlantic and Aquilon had the highest specific gravity while tubers of AF1763-2 and E11-45 had the lowest. Envol and Superior tubers were free of internal defects. Katahdin, Atlantic, Aquilon, Yukon Gold and E11-45 had a high percentage of internal defects.

Cornell and USDA White-skinned Clones:

The best appearing clones were Eva, Salem and B1806-8. The worst appearance ratings were given to Norwis, U75-1 and U85-12. The entries that produced the highest total and marketable yields were T2-2 and T35-34. U109-6 produced high total yield but a combination of a large number of less than 2" tubers and defects reduced the yield of marketable 2-4" tubers. Lines with the highest specific gravity were T2-2, T35-34 and U75-1. The lowest specific gravities were recorded for Eva, Norwis, Salem and T28-1. None of the entries were completely free of internal defects. Those with the lowest percentage were Reba, Salem, T2-2 and T28-1.

Red- and Purple-skinned Clones: Three entries had pink or purple flesh. They were S45-5, S48-6 and T17-2. Tubers of S48-6 and T17-2 had high appearance ratings. While not indicated in the defect data, tubers of S48-6 were prone to breakdown after grading. The highest total and marketable yields were produced by T11-2. This line produced the largest tubers in the experiment. Tubers of Dark Red Norland and S48-6 had the lowest specific gravity. The lines with the highest specific gravity were Chieftain, S45-5, T15-1 and T17-2. Chieftain tubers had the most internal defects. Eleven percent of T17-2 tubers cut had some degree of internal necrosis.

Observation Trial: Data from a non-replication trial on yield, appearance, specific gravity and internal defects of early selection clones and recently released varieties are presented in Table 8.

Storage Results: After-cooking darkening and blackspot ratings for clones grown in 2000 are given in Table 9.

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Long Island Table 1. Tuber characteristics of potato clones grown on Long Island, N.Y.–2001

CLONE	Table	Color	Texture	Shape	Depth	Eye Depth		Appearance	Comments
						Lateral	Apical		
Katahdin	2-3	W	RS	O-R	SF	S	MD-D	6.3	St, Sl Irr, ID
Katahdin	4-5	W	RS	O-R	SF	MS-S	MD-D	5.8	Sc, SED, L , Sl Irr, St, ID
Superior	2-3	Bu	SN	O-R	MT	MD	MD-D	5.3	Irr, some Sp
Andover	2-3	Bu	SN	O-R	MT	S	MD	6.3	Sl Irr, Sc
Aquilon	2-3	W	RS	O	MT	S	MS	7.0	Sl Irr, SS, Rot , ID
Atlantic	2-3	Bu	N-SN	O-R	MT	MS	MD-D	5.0	Irr, Rot , ID
Chieftain	6-7	Pi	RS	O	MT	MS	MS	5.5	St, Sk, Sl Irr
Eva (NY103)	4-5	W	RS	O	R	S	MS	6.6	L detract, Sl Irr, Some sm BH
Envol	2-3	W	RS	O	MT	S	MS-MD	6.7	Sp, SS
Kennebec	2-3	W	RS	O	SF	S	MS-MD	3.3	Irr, Kn, Rot , N
Norland	6-7	Pi	RS	O-R	MT	MS	MS	5.8	Sp, Light color
Norwis	4-5	W	RS	O	SF-MT	MD	MS-D	4.5	Sc, L , Irr, Sl Y Fl, ID
Reba	4-5	Bu	RS	O	MT	MS	MD	6.3	Sc, Sm L, Sl Irr
Redsen	6-7	DR	RS	R-O	R	S	S-MS	5.8	SS , Sl Irr
Salem	4-5	Bu	RS-SN	O	MT	S	MS	6.6	L , Sl Irr
Yukon Gold	2-3	W-PiB	SN	O-R	MT	S	MS-MD	7.0	Sl Irr, SS , Some BH & Sp, ID
AF1615-1	2-3	W	RS	R-O	MT	S	MS	6.3	Sl Irr, Rh , Some pointed
AF1763-2	2-3	W	RS	O-R	SF	MS	MD-D	3.7	Irr, Mis
AF1938-3	2-3	W	RS	O-R	MT	S	MS	6.7	Sl Irr, SS
B1806-8	4-5	Bu Y	RS-SN	O-R	R-MT	S	S	6.5	Rot , Sl Y, Severe VD
E11-45	2-3	W	RS	O-R	MT	S	MD	4.0	L, Sc , ID
S45-5	6-7	Pu	RS	O	R-MT	S-MD	MS	5.3	Proturding eyes, Pu Fl, SS
S48-6	6-7	DR	S	O-L	R-MT	S	S-MS	6.5	Rot! , Pi Fl
T2-2	4-5	Bu Y	SN	O-R	MT	S	MS	6.0	L, PE, Rot , Sl Y, Sl Irr
T11-2	6-7	MR	SN-RS	R	R	MS-MD	MD	6.0	L, N, SS , Sl Sk, Vari
T15-1	6-7	DR	SN	R-O	R	MS	MS-MD	6.3	Att, Sm, Cream Fl
T15-3	6-7	M-DR	SN-RS	R-O	MT	MS-MD	MD	5.0	SS , Irr, Sk, Sc
T17-2	6-7	DR	S	O	R	S	S	7.0	Pi Fl, Sl Irr, Sc
T27-21	4-5	Bu	SN-RS	R	R	S-MS	MS-MD	4.8	Sm, Sc , L detract, Irr
T28-1	4-5	Bu Y	SN	R	R	S	S-MS	6.3	SM, Sp, Rot , Variable, CT
T35-34	4-5	Bu	SN	R	R	S	MS	6.3	Sl Irr, Patchy Sk, DSE, ID
U75-1	4-5	W	RS	O-R	MT-SF	MS	MD-D	4.3	L , Irr, some sm BH, ID
U85-12	4-5	W	RS	O-R	SF	MS	MS-MD	4.3	Irr, SED, Sc, PE, Rh, Mis , ID
U109-6	4-5	W	RS	R-O	R-MT	MS	MS-MD	5.0	L! PE , Irr, ID

COLOR: B=brown, Bu=buff, Pi=pink, Pu=purple, R=red, T=tan, W=white, Y=yellow. Modifiers: L=light, M=medium, D=dark.

TEXTURE: N=netted, R=russet, S=smooth. Modifiers: H=heavy, M=moderate, R=Relatively, S=Slightly.

SHAPE: L=long, O=oblong, R=round.

EYE DEPTH: D=deep, M=moderate, S=shallow.

TUBER DEPTH: MT=medium thick, R=round, F=flattened, SF=slightly flattened.

COMMENTS: Abbreviations in bold are major defects. AE=apical eyes, Br=bright, BH=Blackheart, CT=Chain tubers, Fl=flesh, ID=Internal Defects, Irr=irregular, Kn=knobs, L=prominent lenticels, Lt=light, Mis=Mishapen, N=Root lesion nematode lesions, PE=Pink Eye, Pi=pink, Rh=rhizoctonia, Sc=scab, SED=stem end decay, Sk=skinned, Sl=slightly, Sm=small, Sp=sprouts, St=Stolons, SS=Silver scurf, Vari=variable, VD = vascular discoloration, Y=yellow.

Long Island Table 2. Yield, marketable yield, percentage of yield by grade, size distribution and specific gravity of NE184 white-skinned clones grown at Riverhead, N.Y. - 2001 ¹

	Total Yield	Marketable Yield	Size Distribution (%)						Appear- ance	Spec Grav ²
	cwt/A	percentage of standard	2 -	2.5 -	3.25 -					
Clone	cwt/A	cwt/A	< 2"	2.5"	3.25"	4"	> 4"			
Season 149 days										
Katahdin	635	573	100	5	37	55	3	0	6.3	76
Andover	412	372	65	5	49	43	2	0	6.3	81
Atlantic	557	494	86	3	25	62	9	1	5.0	90
Aquilon	630	562	98	5	40	54	1	0	7.0	87
Envol	383	335	59	3	35	62	0	0	6.7	78
Kennebec	638	427	74	3	23	63	12	0	3.3	75
Superior	414	364	64	7	60	33	0	0	5.3	79
Yukon Gold	411	385	67	4	30	61	5	0	7.0	82
AF1615-1	675	587	102	4	33	59	4	0	6.3	75
AF1763-2	470	336	59	12	53	33	2	0	3.7	64
AF1938-3	547	497	87	3	29	65	2	0	6.3	79
E11-45	581	415	72	4	23	56	16	0	4.0	69
<i>Waller-Duncan</i>										
<i>LSD (0.05)</i>	<i>(60)</i>	<i>(93)</i>								<i>(5)</i>

¹ Planted on 4/16/01, fertilizer rate was 100-200-200/A plus 60 lb N/A sidedressed, vine killed on 9/12/01, harvested on 10/9/01. Plot size 2 (34") rows X 12.5' (Envol, Yukon Gold and AF 1938-3 were planted in one-row plots), spacing 9.3", 3 replications.

² -1.0 is excluded from specific gravity readings.

Long Island Table 3. Maturity, tuber shape, and internal and external defects of NE184 white-skinned clones grown at Riverhead, N.Y. - 2001

Clone	Mat on 9/4/01	Tuber Shape	Tuber Defects (%)					Percentage				
			Total	Sun- burn	Mis- shapen	Growth cracks	Other ²	Hollow heart	Brown center	Internal Necrosis		
										Sl.	Mod.	Sev.
Season 149 days												
Katahdin	4	O - R	5	1	2	0	1	3	7	10	13	0
Andover	1	O - R	5	0	3	1	1	10	3	0	0	0
Atlantic	3	O - R	7	1	4	2	1	20	17	3	7	9
Aquilon	4	O	6	0	2	3	1	3	33	10	7	0
Envol	1	O	9	0	8	1	0	0	0	0	0	0
Kennebec	4	O	31	3	15	1	11 (Rot, N)	7	3	10	0	0
Superior	1	O - R	5	0	4	1	0	0	0	0	0	0
Yukon Gold	1	O - R	2	0	2	0	0	7	7	17	3	0
AF1615-1	4	R - O	10	1	7	0	1	0	3	7	0	0
AF1763-2	1	O - R	18	2	12	3	1	0	0	7	3	0
AF1938-3	3	O - R	6	1	2	2	1	0	7	0	0	0
E11-45	5	O - R	25	2	4	1	17 (L, Sc)	3	20	10	17	4

¹ -See rating system outlined in the text.

² -Other includes defects such as rhizoc., prom. lenticels, pink eye, nematode, decay and other defects scorable against a U.S. No.1 grade, primary defects listed in (). Mechanical defects were not scored.

Long Island Table 4. Yield, marketable yield, percentage of yield by grade, size distribution and specific gravity of Cornell and USDA white-skinned clones grown at Riverhead, N.Y. - 2001.¹

Clone	Total Yield cwt/A	Marketable Yield		Size Distribution (%)					Appear- ance	Specific Gravity ²
	cwt/A	percentage of standard	< 2"	2 to 2.5"	2.5 to 3.25"	3.25 to 4"	> 4"			
Season - 149 days										
Katahdin	594	497	100	4	26	62	8	0	5.5	71
Eva	526	440	88	4	14	59	23	0	6.8	68
Norwis	479	432	87	4	25	59	11	0	4.0	67
Reba	561	503	101	5	49	44	1	0	6.0	75
Salem	580	515	104	6	32	54	8	0	6.5	67
B1806-8	485	442	89	6	38	52	4	0	6.5	79
T2-2	618	570	115	3	24	65	8	0	6.0	82
T27-21	545	440	88	13	59	26	3	0	4.5	73
T28-1	455	381	77	12	64	23	1	0	6.0	64
T35-34	667	590	119	9	54	35	2	0	6.0	83
U75-1	555	418	84	7	37	54	1	0	4.0	84
U85-12	523	385	77	6	27	57	9	1	4.0	78
U109-6	623	501	101	8	45	45	2	0	4.5	76
<i>Waller-Duncan</i>										
LSD (0.05)	(54)	(64)								(4)

¹Planted on 4/16/01, fertilizer rate was 100-200-200/A plus 60 lb N/A sidedressed, vine killed on 9/12/01, harvested on 10/3/01, plot size: 2 (34") rows X 12.5', spacing: 9.3", replications: 4.

² 1.0 is excluded from specific gravity readings.

Long Island Table 5. Maturity, tuber shape, and internal and external defects of Cornell and USDA white-skinned clones grown at Riverhead, N.Y. - 2001.

Clone	Maturity ¹		Tuber Defects (%)					Percentage				
	on 9/4/01	Tuber Shape	Total	Sun-	Mis-	Growth	Other ²	Hollow heart	Brown center	Internal Necrosis		
				burn	shapen	cracks				Sl.	Mod.	Sev.
<u>Season - 149 days</u>												
Katahdin	4	O-R	13	2	2	0	9(Sc,SED,L)	15	7	17	8	3
Eva	4	O	13	3	4	0	6(L,Rot)	13	3	8	2	0
Norwis	3	O	6	1	3	1	1	8	7	17	8	10
Reba	2	O	5	0	3	0	1	3	2	0	0	0
Salem	2	O	5	1	2	1	1	0	0	7	0	0
B1806-8	2	O	3	1	2	0	1	5	7	0	0	0
T2-2	3	O-R	5	0	3	1	1	3	0	2	0	0
T27-21	3	R	8	1	5	1	1	0	0	10	0	2
T28-1	1	R	5	0	4	0	0	0	3	0	0	0
T35-34	3	R	3	0	2	0	0	8	2	12	2	0
U75-1	3	O-R	19	1	6	1	10(L)	5	2	5	3	0
U85-12	4	O-R	21	3	13	1	4	3	5	12	5	5
U109-6	3	R-O	13	1	2	0	9(L,PE)	7	7	10	5	10

¹ -See rating system outlined in the text.

² -Other includes defects such as rhizoctonia, prominent lenticels, pink eye, decay and other defects scorable against a U.S. No.1 grade, primary defects listed in (). Mechanical defects were not scored.

Long Island Table 6. Yield, marketable yield, percentage of yield by grade, size distribution and specific gravity of red- and purple--skinned clones grown at Riverhead, N.Y. - 2001.¹

Clone	Total Yield	Marketable Yield		Size Distribution (%)					Appear- ance	Specific Gravity ²
	cwt/A	cwt/A	percentage of standard	< 2"	2 to 2.5"	2.5 to 3.25"	3.25 to 4"	> 4"		
Season 149 days										
Chieftain	484	441	100	5	32	61	3	0	5.5	71
D. R.Norland	297	263	60	10	67	22	0	0	5.8	61
Redsen	285	225	51	16	56	28	1	0	5.8	69
S45-5	324	259	59	16	69	15	0	0	5.3	74
S48-6	428	382	87	6	41	49	4	0	6.5	65
T11-2	590	552	125	3	17	62	18	0	6.0	68
T15-1	318	228	52	27	59	14	0	0	6.3	72
T15-3	440	368	83	13	63	23	2	0	5.0	66
T17-2	369	283	64	22	70	8	0	0	7.0	73
<i>Waller-Duncan</i>										
LSD (0.05)	(106)	(98)								(4)

¹ Planted on 4/16/01, fertilizer rate was 100-200-200/A plus 60 lb N/A sidedressed, vine killed on 9/12/01, harvested on 10/3/01, plot size: 2 (34") rows X 12.5', spacing: 9.3", replications: 4.

² 1.0 is excluded from specific gravity readings.

Long Island Table 7. Maturity, tuber shape, and internal and external defects of red- and purple-skinned clones grown at Riverhead, N.Y. - 2001.

Clone	Maturity ¹		Tuber Defects (%)					Percentage				
	on 9/4/01	Tuber Shape	Total	Sun- burn	Mis- shapen	Growth cracks	Other ²	Hollow heart	Brown center	Internal Necrosis		
										Sl.	Mod.	Sev.
Season 149 days												
Chieftain	2	O	5	0	2	0	2	0	0	18	8	8
D. R.Norland	1	O - R	1	0	1	0	0	0	0	0	0	0
Redsen	1	R - O	6	0	3	1	2	0	0	0	0	0
S45-5	1	O	5	0	4	1	1	8	0	0	0	0
S48-6	1	O	5	1	3	0	2	0	0	3	0	0
T11-2	4	R	4	0	1	1	2	0	3	3	0	0
T15-1	1	R - O	1	0	1	0	0	0	0	0	0	0
T15-3	1	R - O	4	0	3	0	1	0	0	0	0	0
T17-2	1	O	2	0	1	0	0	0	0	3	3	5

¹ -See rating system outlined in the text.

² -Other includes defects such as rhizoctonia, prominent lenticels, pink eye, decay and other defects scorable against a U.S. No.1 grade, primary defects listed in (). Mechanical defects were not scored.

Long Island Table 8. Yield and quality of early selection lines and recently named varieties in a non-replicated observation trial. 2001

Clone	Yield (cwt/A)		% of standard	% Defects	Spec. ¹	% Internal Defects					Eye Depth		Appearance	Comments ²				
	Total	2-4				HH	BC	SI	M	S	Color	Texture			Shape	Depth		
																	Internal Necrosis	
Season 19 days																		
Katahdin	569	495	100	9	64	0	30	20	10	30	W	RS	R-O	SF	S	D	6	SI Irr, St
Katahdin	743	614	124	12	73	30	10	20	20	30	W	RS	O-R	SF	S	D	7	St, Sc
Superior	571	441	89	18	79	0	0	0	0	0	Bu	SN	O-R	SF	MD	D	4	Irr
Superior	495	440	89	7	72	0	0	0	0	0	Bu	SN	O-R	SF	MD	MD	6	Good for Superior
Yukon Gold	528	495	100	3	81	20	10	30	10	0	W-P	RS	O-R	MT	S	MS	7	OK, Yellow Int.
Yukon Gold	520	443	89	11	85	20	30	30	10	0	WP	RS	O-R	MT	S	MS-MD	6	SI Irr, Sc
AF 2261-1	690	589	119	11	80	60	0	0	0	0	W	RS	O	MT	MS	MS	5	Pear
AF 2271-5	618	494	100	12	73	0	0	0	0	0	W	S	O	S	S	S	6	SI Irr, GC
B2000-185	715	596	120	16	87	10	10	10	10	0	Bu	SN	R	R	S	MD	6	Irr, L, Some Sp, Sc
B2055-7	862	527	106	27	80	0	0	10	0	0	W	RS	O-L	SF	S	S	5	Sc, Irr, Pointed, ?
SC8801-2	501	384	78	22	62	0	10	0	0	0	W	RS	O-R	MT	S	MS	5	L, SI Irr
V12-2	584	503	101	9	71	0	30	0	0	0	W	S	R	R	S	MS	6	Sc, CT
V15-72	559	513	103	5	74	10	0	0	0	0	Bu	SN	R	MT	S	MD-S	6	SI Irr, L, MDSE, Kn
V22-12	653	535	108	10	82	0	0	10	10	0	W-Y	SN	R	MT	MS	D	5	Irr, DSE
V72-8	614	533	108	10	83	30	10	20	10	50	Bu	SN	R	R	MS	D	4	Irr, DSE, DAE, Sc
V76-17	578	497	100	7	90	0	0	0	0	0	W	RS	R-O	MT	S	MS	7	some spindle, Sc
V77-14	524	472	95	2	79	0	0	0	0	0	W	RS	R	R	S	MD	7	SI Irr, Small, OK yield
V78-19	576	496	100	9	79	10	10	10	0	0	Bu	RS	R	MT	MS	D	6	SI Irr, L
V101-9	773	498	101	31	74	0	10	20	10	0	BW	S	O	MT	S	MD	6	SI Irr, L, PE
V135-1	528	420	85	14	72	0	0	0	0	0	W	S	O-R	MT	S	MS	7	L, SI Irr
Red-skinned																		
DR Norland	461	411	83	2	57	0	0	0	0	0	Pi	RS	O-R	MT	MS	MS	5	Pink to Patchy Tan
Chieftain	842	705	142	8	68	0	0	20	30	0	Pi	RS	O-R	SF	S	MS	6	SI Irr, Patchy Sk
Ware's Pride	974	681	137	24	61	0	0	0	0	0	Pi	RS	R	F	MD	D	4	Irr
B0984-1	799	580	117	20	81	40	0	0	0	0	MR	RS	R	SF	MS	MS	6	SI Irr, Some SS, Cr Fl
Russet-skinned																		
R Norkotah	622	305	62	18	70	10	0	0	0	0	Br	MR	L	MT	S	S	6	PE
Russet Legend	342	268	54	7	68	20	0	10	0	0	Br	M-HR	L	MT	S	S	6	SI Irr, GC
Gem Russet	735	485	98	20	77	20	0	10	0	0	Br	MR	L	R	S	S	7	PE, Cyl, Patchy
AF1866-8	511	379	77	11	68	0	0	0	0	0	Br	MR	L	SF	S	MS	6	SI Irr
B2059-2	571	393	79	8	78	0	0	10	20	20	Br	HR	L	R	S	S	6	Sc

Long Island Table 8. Yield and quality of early selection lines and recently named varieties in a non-replicated observation trial. 2001

Clone	Yield (cwt/A)		% of standard 2 to 4	% Defects	Spec. ¹	% Internal Defects							Color	Texture	Shape	Depth	Eye Depth		Appearance	Comments ²
	Total	2-4				Internal Necrosis					Lateral	Apical								
						HH	BC	SI	M	S										
Clones with low yields and/or poor appearance.																				
AF 2211-4												Bu	N	O-R	SF	S	MD	4	Irr, CT Rg	
AF 2260-5												Bu	N	R-O	MT	MS	MS	4	Irr, CT, Kn	
AF 2262-1												Bu	SN	O-R	MT	S	MS	4	Good Yield, Irr, CT	
AF 2265-2												Bu	N	O	SF	S	MD	5	Good Yield, Irr, CT	
AF 2267-7												Bu	SN	R-O	MT	S	MS	7	Small, Good Yield	
AF 2267-8												Bu	SN	R-O	SF	S	MD	4	CT, Good Yield	
AF 2269-1												Bu	SN	O	MT	S	MS	4	Good Yield, SI Pointed	
AF 2269-8												W	SN	O	MT	S	MS	4	Good Yield, Irr	
AF 2271-6												Bu	N	O	SF	S	MS	5	Irr, Pointed	
ARSW95-6553-1												Bu	N	R-O	SF	MS	MD	7	Good Yield, Sm, Vari Size	
ARSW96-40022-5												W	RS	R	R	MS	MS	7	V Sm	
B1752-5												BuY	SN	R-O	R	S	MS	6	BC, IN, Small	
B0607-2												W-P	RS	R	R	S	S	7	V Sm, OK Yield	
B1598-4												Bu	SN	O-R	MT	S	MS	5	HH, Irr, Small	
B1880-6												Bu	SN	R-O	MT	S	MS	4	CT, Kn	
B1919-9												Bu	N	O	MT	S	S	5	Neither Rus or White	
B1957-150												Bu	RS	O-L	SF	MS	MS	2	Kn, Irr	
B1958-85												Bu	SN	O-L	MT	S	MS	3	CT! Sc, Irr	
B1971-11												Bu	N	O	MT	S	MS	4	Good Yield, Irr	
B1973-12												Bu	SN	O	R	S	S	6	V Sm! Low Yield	
B1973-3												Bu	SN	O-R	R	S	S	6	Good Yield, Small	
B2001-186												Bu	SN	R-O	MT	S	D	6	Good Yield, Small	
B2003-133												Bu	N-SN	O-R	MT	S	MS	5	Irr, "Dark"	
B2003-140												W	RS	R	R	S	S	7	V Sm, Some Sp	
B2018-6												Bu	SN	R	MT	S	MS	3	Irr, GC, Kn, Sc	
B2018-7												Bu	N	O-L	R	S	S	3	Hi Yield, Pointed, Kn, CT	
B2018-8												W	SN	O	SF	S	S	4	Sm, Irr, Sc	
B2024-10												Bu	SN	O	SF	S	MS	5	Sc! Sp	
B2024-33												BuY	SN	R	R	S	MS	6	Small, Med Yield	
B2024-9												Bu	SN	O	SF	S	S	4	Irr, CT	
B2044-3												W	S	R-O	ST	S	MS	2	CT, Sp, Irr	
V15-28												Bu	SN	R-O	MT	S	MS	5	Irr, Pointed, Sc	

Long Island Table 8. Yield and quality of early selection lines and recently named varieties in a non-replicated observation trial. 2001

Clone	% Internal Defects														Comments ²	
	Yield (cwt/A)		% standard	Defects	% Spec. ¹	Internal Necrosis				Eye Depth		Appearance				
	Total	2-4				HH	BC	Sl.	M	S	Color		Texture	Shape		Depth
V15-6			Bu	SN	R	R	S	S				7	V Small			
V15-71			Bu	SN	R	R	S	S				7	Small, Good Yield			
V15-8			Bu	SN	O-R	R	S	S				6	Many Sm Sp Tubers			
V18-27			W	RS	R	SF	S	MD				6	Mod Yield, Irr, Thick St			
V18-5			W	RS	O	F	S	MS				3	Irr, Twisted, Kn			
V22-1			Bu	SN	O-R	SF	MS	MD				4	MDSE, Irr			
V22-9			W	SN	R	F	S	MD				3	PE!			
V23-11			Bu	SN	O	F	S	MD				4	Irr, Good Yield			
V23-61			Bu	SN	R-O	SF	S	MS				4	Sc, Irr, Good Yield			
V7-3			W	RS	O-R	MT	S	MS				5	Irr, Rot!			
V72-55			Bu	RS	O	F	S	MD				4	Irr			
V73-5			Bu	SN	O-R	R	S	MS				5	Small, Variable			
V75-9			W	S	O-R	SF	S	MS				4	Irr, Sm			
V76-13			Bu	N	R-O	SF	S	MS				5	L, Irr, Dark			
V76-19			Bu	N-SN	R	R	MS	MS				7	small			
V78-25			W	RS	R	R	S	MD				6	Small			
V78-28			W	RS	O-R	MT	S	MS				7	Irr, Var Size, Sm			
V78-6			W	RS	R	MT	S	MS				6	V Sm			

¹ -1.0 is excluded from specific gravity readings.

² -See footnotes in Table 1.

Planted on 4/16/01, fertilizer rate was 100-200-200/A plus 60 lb N/A sidedressed, vine killed on 9/12/01, harvested on 9/24/01.

Long Island Table 9. After-cooking darkening and blackspot ratings of clones grown in 2000.

NE184 White			Cornell White			Red- & Purple-skinned			Russet			European		
2000 Tables 2 & 3			2000 Tables 4 & 5			2000 Tables 6 & 7			2000 Tables 8 & 9			2000 Tables 10 & 11		
Clone	ACD	BS	Clone	ACD	BS	Clone	ACD	BS	Clone	ACD	BS	Clone	ACD	BS
Katahdin	4.7	4.1	Katahdin	4.6	3.8	Chieftain	4.9	4.0	Rus Norkotah	4.6	4.5	Superior	4.7	
Atlantic	4.6	3.9	NY121	4.7	3.7	D. R. Norland	3.8	4.9	Amey	4.6	3.8	Marine	4.3	
Superior	4.8	4.3	T2-2	4.9	4.9	CO86218-2	4.9	4.9	A8495-1	4.5	4.3	Sandy	4.0	
Norwis	5.0	4.7	T3-9	4.7	4.2	B1763-4	4.8	4.9				Amandine	5.0	
Yukon Gold	4.8	3.8	T20-15	4.9	4.5	T11-2	4.6	4.5				Sante	4.3	
AF1615-1	4.8	4.6	T27-21	4.6	4.7	T15-1	5.0	4.7						
AF 1758-7	4.9	4.5	T28-1	4.9	5.0	T15-3	4.7	4.1						
AF1763-2	5.0	4.7	T35-34	4.7	3.5	T17-2	5.0	4.8						
NY115	4.0	3.9	T37-3	4.3	4.2	B1495-6	4.8	3.8						
						B1523-4	4.9	3.8						

After-cooking darkening (ACD) rating based on a scale of 1 to 5; 1 = severe darkening, 5 = no after-cooking darkening. Five tubers rated per replication, four replications in each experiment. Tubers were peeled and dipped in a 0.5% solution of sodium bisulfite and cooked in an autoclave for 7 minutes and rated after 20 minutes. Blackspot (BS) determinations are based on approximately ten tubers per replication. Tubers were stored at 40° F and bruised between 1/31/01 and 3/7/01 and then stored at 55° F. Bruised areas were peeled and evaluated two days after impact. Each tuber received a blow in each of two locations about 1 to 2 cm from the stem end. The bruising was done by dropping a 300 gram weight a distance of 30 cm. The point of impact was marked by inking the base of the weight. Blackspot ratings are based on a scale of 1 to 5 with 1 = severe discoloration

NEW YORK-UPSTATE

D.E. Halseth, E.R. Sandsted, W.L. Hymes, R.L. MacLaury and T.J. Lee

Program Scope:

Potato variety yield trials were conducted in four counties in upstate New York in 2001 in which a total of 47 named and 131 numbered clones were evaluated. Seven replicated variety yield trials were conducted at the Thompson Vegetable Research Farm at Freeville in Tompkins County on a Howard gravelly loam soil. Grower trials for chipstock selections were conducted on mineral soils near Arkport (Steuben County) and Eagle (Wyoming County) and for tablestock lines on a muck soil near Savannah (Wayne County). All trials at Freeville and on grower/cooperator farms were grown using standard commercial cultural practices. Trials at the Cornell research farm and those in the Steuben and Wyoming county grower fields were irrigated as needed. As evaluation of potato lines with golden nematode (GN) resistance is of high priority, 17 named and 63 numbered entries in these trials have GN resistance. Marketable yield, tuber quality and appearance, maturity, storage life and processing potential are among the important characteristics which were evaluated.

Freeville Research Farm Results:

In the early maturity trial with eight entries plus Superior, the potato industry standard for earliness, all but the very early variety Eramosa (vines were completely dead by early August) out-yielded Superior. Andover out-yielded Superior by 165% of its marketable yield and also had the highest specific gravity. Superior was the only entry to have significant internal defects. Cynthia had the most misshapen tubers at 14.7%. The Cornell clone T28-1 had very high yield (534 cwt. per acre marketable yield) and also the best tuber appearance rating.

The medium maturity yield trial with 15 entries had 5 GN resistant clones and varieties with marketable yield above 400 cwt. per acre. T27-21 had the highest marketable yield (507 cwt. per acre) and also very high tuber counts, hence among the lowest in average tuber weight. Atlantic, Yukon Gold and W1313 had a significant percentage of hollow heart. Eva and T27-21 had the best tuber appearance while Divina had a high

percentage of misshapen tubers. W1313 had the highest specific gravity, three points above Atlantic.

Of 18 entries in the medium-late maturity yield trial, 13 had GN resistance and 11 of these GN lines had marketable yields above 300 cwt. per acre. Keuka Gold (NY101) was again the highest yielder, with marketable yield of 460 cwt. per acre. Atlantic had the highest specific gravity (1.090) while AF1758-7 had the lowest (1.064). NY121 had the highest tuber set but lowest average tuber weight while T3-5 had the lowest tuber set but highest average tuber weight. Kennebec (GN susc.) had the highest total percentage of external defects, specifically green and misshapen tubers.

The late maturity trial had 3 GN lines with marketable yield above 400 cwt. per acre. Sandy again had both the highest marketable yield (518 cwt. per acre) and highest tuber set (15.6 tubers/foot) and the lowest average tuber weight (4.2 oz.). B1425-9 and Sandy had the highest specific gravity (1.092) while Sylvia (1.063) was the lowest in gravity. Atlantic, NY112 and Snowden had hollow heart.

In the Cornell and USDA-BARC advanced breeding line trial, no breeding line equaled Snowden's yield nor the specific gravity level of Atlantic. B1725-5 had the best tuber appearance, but also very high levels of hollow heart. Snowden had the highest tuber set while Superior had the lowest

There are few GN resistant red-skinned clones currently available. Chieftain (GN susc.), frequently the highest yielding red in the NYS potato industry, was out-yielded by 11 clones (3 with GN resistance). The GN resistant clone T11-2 was again the highest yielder at 535 cwt. per acre marketable yield. Most clones had few external or internal defects. Selections with good tuber appearance were: A92657-1R, CO86218-2, Dakota Rose, ND5084-3R, NY118, Redsen, and T11-2. NorDonna, Red Pearl and T15-1 had very high tuber set and small tuber size (especially Red Pearl with an average tuber weight of 1.9 oz.).

As with the case of the red-skinned lines, GN resistance is not widely available in russet-skinned lines. Several promising USDA "B" clones were grown in the replicated and observational russet trials. These will be screened for GN resistance. B1404-2 had excellent yield but poor tuber appearance. B2049-2 had excellent yield and

appearance, but was only in a single observational plot. Russet Burbank had the highest total yield, but, as usual due to its very high percentage of misshapen tubers, it had the lowest marketable yield.

Grower County Trial Results:

The Steuben and Wyoming County chip processing trials had 12 GN clones and one susceptible variety (Snowden) grown on mineral soils. Only NY120, T2-2 and Snowden had marketable yields above Atlantic at both locations. NY115 had the lowest marketable yield at both sites. T35-34 had the highest tuber set while T3-5 had the highest average tuber weight at both locations. Very high levels of internal vascular discoloration of tubers was found in NY120 and Snowden at both chip-trial sites.

Round red and white tablestock clones were evaluated on muck soil at the Savannah trial. Seven red clones had marketable yield above Chieftain. Super Red Norland had the lowest specific gravity (1.055) while B1952-4 had the highest (1.082). Super Red Norland had the lowest tuber set (8.7 tubers/foot) while T15-1 was the highest (19.7 tubers/foot). Six round white clones had marketable yield above 400 cwt. per acre. NY112 had the highest marketable yield at 484 cwt./acre. Yukon Gold had the lowest tuber set (5.8 tubers/foot) and NY125 had the highest tuber set (16.0 tubers/foot).

Processing and Cooking Evaluations:

Chip data (table 19) are presented for five Freeville trials and the two chip grower trials. Samples from all trials were held in Cornell storage at both 45°F and 40°F, and the county trials had a third sample held in the growers storage (52°F for Steuben and 48°F for Wyoming). Andover, AF1938-3 and T28-1 had Agtron scores above 50 directly out of the field from the early trial. NY115 had the best color from 45°F while W1313 had the best color from

40°F storage of the medium maturity trial. While Snowden had the best color from both temperatures in the medium-late trial, NY102, NY120 and U47-21 had Agtron scores above 60 for both storage temperatures. Snowden also had the best color in the late trial, but NY112 was very close in both temperature storages. In the CU-USDA trial, Snowden again had the best chip color, followed by U100-87 which also had Agtron scores above 60 for both temperatures. From the two chip grower trials Snowden, NY112 and NY115 all had Agtron scores above 60 (in six storage sites) in both Cornell storages and in the grower storages.

After-cooking darkening and sloughing ratings are provided for Freeville trials in table 20 and for grower trials in table 21. Twenty-three varieties had ACD and sloughing scores above 4.0, with Cynthia, Divina, Genesee, Kennebec, Russet Burbank, Russet Legend and Salem among the best. Twenty breeding lines had good ACD and sloughing scores above 4.0, with B1806-8, NY118 and T2-2 having the highest ratings.

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Regional potato research project NE-184 rating codes are used in tables for plant and tuber characteristics.

Upstate New York Table 1. Total yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, and specific gravity for the early maturity trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Total Yield Cwt/A	Mkt. Yield		Size Distribution ¹ (% of total yield)					Size Distrib. (%)		Mean Tuber #/ ft. wt.(oz.)	Spec. Grav.	
				Cwt/A	Std.	% of	1	2	3	4			5	1-7/8" to 4"	2-1/2" to 4"
Amandine	469	383	143	6	58	30	6	0	94	36	11.6	4.3	62
Andover	478	440	165	1	27	53	14	3	95	68	7.6	6.6	80
AF1763-2	439	377	141	4	35	48	11	3	94	58	8.5	5.4	63
AF1938-3	427	311	117	2	16	49	19	14	84	68	5.8	7.7	77
Cynthia	530	395	148	2	24	48	21	6	93	69	7.9	7.0	67
Envol	309	285	107	2	33	53	11	1	97	64	5.6	5.8	71
Eramosa	291	254	95	2	45	41	8	4	94	49	5.6	5.4	64
Superior	308	267	100	3	38	46	11	3	94	56	5.7	5.7	76
T28-1	594	534	200	3	32	56	7	2	95	63	11.1	5.6	70
Waller-Duncan													
LSD (k=100)	69	64									1	1	3
C.V. (%)	(12)	(13)									(12)	(9)	(4)

¹Tuber size classes: 1 = 1" to 1-7/8", 2 = 1-7/8" to 2-1/2", 3 = 2-1/2" to 3-1/4", 4 = 3-1/4" to 4", and 5 = over 4" dia.
 Plant Date: May 2 Maturity Ratings: Aug 20 Mow Date: Aug 21 Harvest Date: Aug 22

Upstate New York Table 2. Plant maturity, tuber shape and appearance, and percentage of external and internal tuber defects for the early maturity trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Plant ¹ Mat. At Vinekill	Tuber Attributes ¹			External Tuber Defects (%)				Int. Tuber Defects (%) ²			
		Tuber Shape	Tuber Skin Text.	Tuber Appear.	Total Defects	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.
Amandine	3.0	8	8	6.3	11.8	6.5	5.3	0.1	0.0	0.0	0.0	5.0
Andover	2.5	1	6	7.0	3.1	0.8	1.2	0.6	0.5	0.0	0.0	0.0
AF1763-2	3.8	5	7	4.4	8.0	1.8	4.6	1.6	0.0	0.0	0.0	0.0
AF1938-3	7.0	2	7	5.8	11.3	5.3	1.4	4.6	0.0	0.0	0.0	5.0
Cynthia	3.5	8	8	3.3	18.5	2.3	14.7	1.1	0.3	0.0	0.0	0.0
Envol	1.5	3	6	6.3	4.6	0.9	2.1	1.5	0.1	0.0	0.0	0.0
Eramosa	0.5	3	6	4.8	6.5	1.4	3.6	1.5	0.1	0.0	0.0	0.0
Superior	2.3	5	5	4.1	7.5	1.2	2.5	3.6	0.1	7.5	2.5	2.5
T28-1	5.0	1	6	7.3	5.2	3.8	0.5	0.2	0.7	0.0	0.0	0.0

¹See the standard NE-184 rating system for a key to these rating scales.

²Based on a 10-tuber sample from each replication. The tubers were taken from the size 3 and 4 categories.

Upstate New York Table 3. Total yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, and specific gravity for the medium maturity trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Total Yield Cwt/A	Mkt. Yield		Size Distribution ¹ (% of total yield)					Size Distrib. (%)		Mean Tuber #/ft. wt.(oz.)	Spec. Grav.	
		Cwt/A	% of Std.	1	2	3	4	5	1-7/8" to 4"	2-1/2" to 4"			
Atlantic	478	409	100	2	23	51	19	6	93	70	7.4	6.7	89
BO766-3	444	339	83	1	12	42	27	18	81	69	5.5	8.4	81
Divina	629	342	84	3	19	40	21	18	79	60	9.0	7.3	68
Eva	417	329	80	2	21	53	17	7	91	70	6.1	7.2	71
Monona	440	304	74	2	17	47	15	19	79	62	6.1	7.5	67
NY115	428	389	95	3	42	41	11	2	95	53	8.2	5.5	77
NY125 (S28-2)	492	455	111	4	37	53	6	0	96	59	9.5	5.4	72
Reba (NY87)	465	406	99	2	21	47	24	5	92	71	7.5	6.5	73
Salem (NY84)	514	395	97	4	18	43	26	9	87	68	8.0	6.7	65
T20-15	440	386	94	7	57	34	2	0	93	36	10.6	4.3	71
T27-21	564	507	124	6	63	28	3	1	94	31	13.8	4.3	68
T35-34	503	446	109	5	52	37	5	0	94	42	11.8	4.4	80
T37-3	513	464	113	6	55	36	2	0	93	38	12.6	4.2	80
W1313	462	363	89	5	38	51	6	1	95	56	9.3	5.2	92
Yukon Gold	379	240	59	2	16	35	24	23	75	59	4.8	8.3	81
Waller-Duncan													
LSD (k=100)	81	66									2	1	4
C.V. (%)	(12)	(13)									(14)	(8)	(4)

¹Tuber size classes: 1 = 1" to 1-7/8", 2 = 1-7/8" to 2-1/2", 3 = 2-1/2" to 3-1/4", 4 = 3-1/4" to 4", and 5 = over 4" dia.

Plant Date: May 2

Maturity Ratings: Aug 21

Vinekill Date: Aug 22

Harvest Date: Aug 29

Upstate New York Table 4. Plant maturity, tuber shape and appearance, and percentage of external and internal tuber defects for the medium maturity trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Plant ¹ Mat. At Vinekill	Tuber Attributes ¹			External Tuber Defects (%)				Int. Tuber Defects (%) ²			
		Tuber Shape	Skin Text.	Tuber Appear.	Total Defects	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.
Atlantic	4.3	1	6	6.1	7.3	3.1	2.8	1.2	0.2	10.0	0.0	0.0
BO766-3	6.5	2	6	3.9	4.8	2.9	1.6	0.3	0.0	0.0	2.5	0.0
Divina	6.3	6	8	5.3	24.1	5.8	17.6	0.5	0.3	0.0	0.0	0.0
Eva	4.0	1	8	8.0	11.3	9.0	1.6	0.0	0.7	0.0	2.5	0.0
Monona	3.5	2	8	3.3	10.3	2.6	6.7	0.9	0.1	2.5	0.0	0.0
NY115	3.3	3	8	6.3	3.8	2.2	1.6	0.0	0.0	0.0	7.5	0.0
NY125 (S28-2)	4.3	3	6	5.5	3.8	3.0	0.8	0.0	0.0	0.0	10.0	0.0
Reba (NY87)	4.8	2	8	7.3	5.2	4.2	0.6	0.5	0.0	5.0	0.0	0.0
Salem (NY84)	3.5	2	8	7.8	9.8	4.6	2.3	2.9	0.0	0.0	0.0	0.0
T20-15	2.8	2	6	5.0	5.7	2.0	1.2	2.1	0.5	0.0	0.0	2.5
T27-21	2.8	2	8	8.1	3.4	2.3	0.4	0.7	0.1	0.0	0.0	0.0
T35-34	4.3	2	6	4.3	5.6	4.7	0.9	0.0	0.0	7.5	0.0	0.0
T37-3	2.5	2	8	7.0	3.1	1.3	1.4	0.4	0.0	2.5	0.0	0.0
W1313	5.5	3	6	4.1	15.3	6.3	2.7	6.3	0.0	20.0	0.0	0.0
Yukon Gold	2.3	4	8	5.4	11.4	2.4	4.8	3.7	0.4	17.5	0.0	0.0

¹See the standard NE-184 rating system for a key to these rating scales.

²Based on a 10-tuber sample from each replication. The tubers were taken from the size 3 and 4 categories.

Upstate New York Table 5. Total yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, and specific gravity for the medium-late maturity trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Total Yield Cwt/A	Mkt. Yield		Size Distribution ¹ (% of total yield)					Size Distrib. (%)		Mean Tuber #ft. wt.(oz.)	Spec. Grav.	
		Cwt/A	Std.	1	2	3	4	5	1-7/8" to 4"	2-1/2" to 4"			
Atlantic	439	364	100	2	20	55	17	6	92	72	7.4	6.2	90
AF1455-20	429	320	88	3	22	43	23	10	88	66	6.3	7.2	83
AF1615-1	433	356	98	2	28	50	16	4	94	66	7.2	6.3	79
AF1758-7 (BC)	544	371	102	2	16	45	23	14	84	68	7.5	7.6	64
Castile	528	351	97	2	23	42	20	13	85	62	7.8	7.0	81
Kanona	421	289	79	2	16	41	26	15	83	67	5.8	7.7	77
Katahdin	485	357	98	2	23	47	20	9	90	67	7.2	7.0	72
Kennebec	460	167	46	2	18	36	23	22	76	58	6.0	7.9	74
Keuka Gold	549	460	126	2	17	53	19	8	90	73	8.0	7.1	76
NY102	363	308	85	4	44	40	11	1	95	51	7.4	5.1	86
NY120 (Q8-2)	459	397	109	1	21	56	15	8	91	71	6.6	7.3	87
NY121	445	382	105	6	50	35	7	2	92	42	10.1	4.6	76
NY124 (S14-2)	441	340	93	2	21	43	21	13	85	64	6.2	7.4	78
Penta	469	339	93	4	35	42	14	6	90	55	8.6	5.7	76
Snowden	527	428	118	2	35	48	10	4	93	58	9.3	5.9	86
T3-5	434	230	63	1	14	36	26	22	77	62	5.4	8.4	81
U47-2	363	322	88	3	44	46	6	1	96	52	7.6	5.0	86
U47-21	370	303	83	3	29	50	15	4	94	65	6.2	6.3	88
Waller-Duncan													
LSD (k=100)	50	56									1	1	3
C.V. (%)	(8)	(13)									(10)	(8)	(3)

¹Tuber size classes:

1 = 1" to 1-7/8", 2 = 1-7/8" to 2-1/2", 3 = 2-1/2" to 3-1/4", 4 = 3-1/4" to 4", and 5 = over 4" dia.

Plant Date: May 3

Maturity Ratings: Aug 28

Vinekill Date: Aug 30

Harvest Date: Sep 11

Upstate New York Table 6. Plant maturity, tuber shape and appearance, and percentage of external and internal tuber defects for the medium-late maturity trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Plant ¹		Tuber Attributes ¹			External Tuber Defects (%)				Int. Tuber Defects (%) ²			
	Mat. At	Vinekill	Tuber Shape	Skin Text.	Tuber Appear.	Total Defects	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.
Atlantic	3.8		3	5	6.0	9.4	5.3	3.2	0.7	0.3	10.0	0.0	0.0
AF1455-20	5.5		3	7	6.6	12.9	7.2	4.4	0.6	0.7	0.0	2.5	0.0
AF1615-1	5.3		6	6	7.0	11.7	9.0	1.6	1.1	0.0	0.0	0.0	0.0
AF1758-7 (BC)	5.3		6	7	6.3	16.2	3.9	11.5	0.0	0.8	0.0	0.0	0.0
Castile	5.8		6	8	5.5	18.7	14.2	4.4	0.0	0.1	0.0	0.0	0.0
Kanona	4.8		2	7	5.3	14.4	7.9	0.5	3.5	2.4	0.0	5.0	0.0
Katahdin	4.0		3	8	6.4	16.0	13.7	0.7	1.3	0.3	0.0	5.0	0.0
Kennebec	2.3		6	7	4.3	39.1	13.7	15.2	9.1	1.1	0.0	0.0	0.0
Keuka Gold	5.3		3	6	6.8	6.0	4.6	0.9	0.2	0.3	2.5	0.0	0.0
NY102	3.5		3	7	6.8	9.9	6.1	1.0	2.2	0.6	12.5	0.0	0.0
NY120 (Q8-2)	5.3		3	6	5.9	4.8	1.6	2.4	0.8	0.0	0.0	12.5	0.0
NY121	2.3		2	6	5.5	6.2	4.0	1.9	0.2	0.1	0.0	0.0	0.0
NY124 (S14-2)	4.3		2	6	4.9	8.3	6.4	1.5	0.3	0.0	0.0	0.0	0.0
Penta	5.5		3	7	6.0	17.9	13.6	3.4	0.6	0.3	0.0	0.0	2.5
Snowden	5.8		2	5	5.4	11.8	10.6	0.8	0.4	0.0	0.0	2.5	0.0
T3-5	5.3		3	6	5.9	23.3	22.4	0.1	0.2	0.6	0.0	0.0	0.0
U47-2	5.0		3	7	7.3	8.0	7.0	0.6	0.0	0.4	0.0	0.0	0.0
U47-21	6.0		3	6	6.3	12.2	6.2	2.7	3.3	0.0	15.0	0.0	0.0

¹See the standard NE-184 rating system for a key to these rating scales.

²Based on a 10-tuber sample from each replication. The tubers were taken from the size 3 and 4 categories.

Upstate New York Table 7. Total yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, and specific gravity for the late maturity trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Total Yield Cwt/A	Mkt. Yield — Cwt/A		% of Std.	Size Distribution ¹ (% of total yield)					Size Distrib. (%)		Mean Tuber #/ft. wt.(oz.)	Spec. Grav.
					1	2	3	4	5	1-7/8"	2-1/2"		
										to 4"	to 4"		
Allegany	436	276	79	3	19	40	24	14	83	64	6.5	7.0	77
Atlantic	456	350	100	2	14	59	18	8	90	77	6.5	7.3	88
B1425-9	575	405	116	2	25	52	14	7	91	66	9.0	6.6	92
Elba	493	201	58	2	16	33	20	28	70	54	6.6	7.8	81
Genesee	359	295	84	3	24	50	18	5	92	68	5.9	6.3	68
Katahdin	486	336	96	3	21	48	20	9	88	68	7.8	6.5	69
NY112	586	510	146	2	20	59	15	4	94	74	9.2	6.7	82
NYE11-45	488	389	111	3	23	49	17	8	89	67	7.9	6.5	65
Pike	474	429	123	3	45	47	4	0	97	52	10.2	4.8	87
Sandy	634	518	148	8	52	35	4	1	91	39	15.6	4.2	92
Snowden	572	503	144	2	24	55	15	4	94	70	9.6	6.2	90
Sylvia	477	290	83	4	28	37	16	15	81	54	7.9	6.3	63
T2-2	499	402	115	2	20	50	19	9	89	69	7.3	7.2	76
U75-1	521	451	129	2	28	53	10	6	92	63	8.8	6.2	78
U85-12	442	367	105	2	23	56	15	4	94	71	7.1	6.5	78
Waller-Duncan													
LSD (k=100)	56	66							1	1			3
C.V. (%)	(8)	(13)							(9)	(7)			(3)

¹Tuber size classes:

1 = 1" to 1-7/8", 2 = 1-7/8" to 2-1/2", 3 = 2-1/2" to 3-1/4", 4 = 3-1/4" to 4", and 5 = over 4" dia.

Plant Date: May 3

Maturity Ratings: Sep 4

Vinekill Date: Sep 6

Harvest Date: Sep 18

Upstate New York Table 8. Plant maturity, tuber shape and appearance, and percentage of external and internal tuber defects for the late maturity trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Plant ¹ Mat. At Vinekill	Tuber Attributes ¹			External Tuber Defects (%)				Int. Tuber Defects (%) ²			
		Tuber Shape	Skin Text.	Tuber Appear.	Total Defects	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.
Allegany	3.8	2	8	7.6	20.6	9.6	7.2	3.7	0.0	0.0	0.0	0.0
Atlantic	3.0	1	6	6.3	13.3	5.9	3.2	3.5	0.5	20.0	0.0	0.0
B1425-9	3.0	3	7	3.4	20.9	14.4	5.7	0.4	0.3	0.0	2.5	0.0
Elba	6.0	1	8	4.1	28.7	24.6	2.2	1.8	0.1	0.0	7.5	0.0
Genesee	5.0	2	8	7.5	9.7	7.2	1.1	0.9	0.4	0.0	0.0	0.0
Katahdin	3.0	2	8	6.3	19.2	15.4	1.7	1.3	0.8	5.0	0.0	0.0
NY112	5.8	1	6	6.9	6.7	5.8	0.9	0.0	0.0	10.0	0.0	0.0
NYE11-45	4.3	3	8	7.5	9.9	7.0	1.7	0.7	0.4	2.5	0.0	2.5
Pike	3.3	1	6	5.0	6.0	4.3	1.5	0.3	0.0	0.0	0.0	2.5
Sandy	4.5	3	8	4.0	9.4	5.4	3.8	0.3	0.0	0.0	0.0	0.0
Snowden	4.8	1	5	4.3	6.0	4.7	1.0	0.3	0.0	7.5	0.0	0.0
Sylvia	2.3	6	8	4.0	20.3	4.4	7.7	6.4	1.8	0.0	0.0	0.0
T2-2	2.3	3	6	4.3	8.7	7.1	1.1	0.5	0.0	0.0	0.0	0.0
U75-1	2.8	2	6	5.6	5.5	3.3	1.6	0.4	0.2	0.0	0.0	0.0
U85-12	3.0	1	6	7.1	10.4	4.5	3.0	2.7	0.3	2.5	0.0	0.0

¹See the standard NE-184 rating system for a key to these rating scales.

²Based on a 10-tuber sample from each replication. The tubers were taken from the size 3 and 4 categories.

Upstate New York Table 9. Total yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, and specific gravity for the Cornell-USDA advanced clone trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Total Yield Cwt/A	Mkt. Yield		Size Distribution ¹ (% of total yield)					Size Distrib. (%)		Mean Tuber		Spec. Grav.
		Cwt/A	% of Std.	1	2	3	4	5	1-7/8" to 4"	2-1/2" to 4"	#/ft.	wt.(oz.)	
Atlantic	493	394	100	2	17	46	27	8	90	73	7.1	7.3	89
B1752-5	332	280	71	4	40	45	10	1	95	55	6.7	5.1	72
B1806-8	406	348	88	4	31	49	11	5	92	61	7.5	5.7	77
B1870-3	494	402	102	3	25	49	16	7	90	65	7.9	6.5	64
Katahdin	476	354	90	2	23	46	21	8	90	67	7.5	6.6	74
Snowden	577	509	129	3	30	54	11	2	95	65	10.3	5.9	88
Superior	318	259	66	3	34	42	16	5	92	58	5.6	5.9	75
T88-19	482	427	108	3	28	55	11	4	93	66	8.2	6.2	77
U100-87	441	362	92	1	14	55	22	8	91	77	6.0	7.7	80
U106-26	440	377	96	5	41	41	10	2	93	51	9.1	5.1	76
U109-6	450	415	105	4	37	51	9	0	96	59	8.6	5.5	74
U124-14	391	338	86	4	40	47	8	0	95	55	7.8	5.2	73
Waller-Duncan													
LSD (k=100)	38	53									1	1	2
C.V. (%)	(7)	(11)									(10)	(8)	(2)

¹Tuber size classes: 1 = 1" to 1-7/8", 2 = 1-7/8" to 2-1/2", 3 = 2-1/2" to 3-1/4", 4 = 3-1/4" to 4", and 5 = over 4" dia.

Plant Date: May 4

Maturity Ratings: Aug 28

Vinekill Date: Aug 30

Harvest Date: Sep 4

Upstate New York Table 10. Plant maturity, tuber shape and appearance, and percentage of external and internal tuber defects for the Cornell-USDA advanced clone trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Plant ¹ Mat. At Vinekill	Tuber Attributes ¹			External Tuber Defects (%)				Int. Tuber Defects (%) ²			
		Tuber Shape	Tuber Skin Text.	Tuber Appear.	Total Defects	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.
Atlantic	4.3	1	6	5.9	10.3	4.9	2.9	2.1	0.3	30.0	0.0	0.0
B1752-5	2.3	1	8	8.0	10.1	6.5	2.3	1.1	0.3	25.0	0.0	0.0
B1806-8	3.0	3	7	7.0	5.9	4.5	1.4	0.0	0.0	2.5	0.0	0.0
B1870-3	3.3	1	6	7.4	8.2	3.8	2.0	2.4	0.0	0.0	0.0	0.0
Katahdin	4.3	3	8	6.6	15.2	13.5	1.3	0.3	0.1	0.0	0.0	0.0
Snowden	5.0	2	6	4.5	6.3	5.0	1.2	0.1	0.1	5.0	0.0	0.0
Superior	2.0	3	6	4.6	10.8	4.4	5.5	0.7	0.2	2.5	5.0	0.0
T88-19	2.0	3	6	6.0	4.9	2.2	2.4	0.2	0.1	0.0	0.0	0.0
U100-87	1.5	3	8	5.4	8.8	0.7	4.8	3.2	0.2	0.0	0.0	0.0
U106-26	2.3	3	8	5.6	7.2	3.3	2.8	0.7	0.3	0.0	0.0	0.0
U109-6	3.0	1	7	7.0	4.1	3.2	0.7	0.0	0.2	0.0	0.0	0.0
U124-14	2.0	4	8	6.0	8.5	2.2	5.3	0.7	0.4	10.0	0.0	0.0

¹See the standard NE-184 rating system for a key to these rating scales.

²Based on a 10-tuber sample from each replication. The tubers were taken from the size 3 and 4 categories.

Upstate New York Table 11. Total yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, and specific gravity for the red-skinned 2-rep observational trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Total Yield Cwt/A	Mkt. Yield		Size Distribution ¹ (% of total yield)					Size Distrib. (%)		Mean Tuber		Spec. Grav.
		Cwt/A	Std.	%					1-7/8" to 4"	2-1/2" to 4"	#/ft.	wt.(oz.)	
				1	2	3	4	5					
A92657-1R	441	282	83	2	20	39	16	23	75	55	6.7	7.0	68
Chieftain	491	342	100	3	24	46	13	13	83	59	8.1	6.3	68
CO86218-2	418	344	101	5	27	50	13	4	91	64	7.6	5.7	72
Dakota Rose	429	377	110	6	47	41	5	1	93	46	9.1	4.9	62
IdaRose	528	375	110	4	25	49	13	9	87	62	9.3	5.9	72
NorDonna	512	456	133	7	51	39	3	0	93	42	12.5	4.3	74
Norland	409	361	106	3	36	54	8	0	97	61	7.5	5.7	63
Norland, Dark Red	410	359	105	5	33	52	8	2	93	60	7.8	5.5	65
Norland, Super Red	400	275	80	2	23	41	20	13	85	61	6.0	7.0	58
ND3196-1R	363	272	80	8	41	43	7	1	91	50	8.2	4.6	75
ND5084-3R	544	375	110	3	15	40	24	18	79	64	7.6	7.4	62
NY118	475	403	118	7	42	46	4	1	92	50	10.6	4.7	68
Red Companion	396	337	99	8	65	26	1	0	92	27	10.3	4.0	64
Red Pearl	235	93	27	49	49	2	0	0	51	2	12.9	1.9	68
Redsen	300	258	75	8	50	38	4	0	92	42	6.8	4.5	68
Rideau	475	352	103	2	17	48	26	7	91	74	7.3	6.7	75
T11-2	624	535	156	3	17	60	14	6	92	74	9.5	6.8	67
T15-1	466	406	119	11	68	19	2	0	89	21	13.7	3.6	67
T15-3	330	277	81	13	70	17	0	0	87	17	10.2	3.3	64
T17-2	363	292	85	8	58	31	3	0	92	34	9.3	4.1	68
Waller-Duncan													
LSD (k=100)	112	94									2	1	4
C.V. (%)	(12)	(14)									(10)	(9)	(3)

¹Tuber size classes:

1 = 1" to 1-7/8", 2 = 1-7/8" to 2-1/2", 3 = 2-1/2" to 3-1/4", 4 = 3-1/4" to 4", and 5 = over 4" dia.

Plant Date: May 4

Maturity Ratings: Aug 28

Vinekill Date: Aug 30

Harvest Date: Sep 5

Upstate New York Table 12. Plant maturity, tuber shape and appearance, and percentage of external and internal tuber defects for the red-skinned 2-rep observational trial grown at Freeville, New York - 2001.

Genotype Variety or Clone	Plant ¹ Mat. At Vinekill	Tuber Attributes ¹			External Tuber Defects (%)				Int. Tuber Defects (%) ²			
		Tuber Shape	Skin Text.	Tuber Appear.	Total Defects	Sun-Green	Mis-shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.
A92657-1R	5.5	3	8	7.3	12.3	4.5	7.3	0.5	0.0	0.0	5.0	0.0
Chieftain	3.0	3	8	4.0	12.8	1.6	9.8	1.3	0.1	0.0	5.0	0.0
CO86218-2	5.5	2	8	7.8	8.4	5.7	2.2	0.5	0.0	0.0	5.0	0.0
Dakota Rose	1.0	3	9	8.5	5.0	1.3	2.2	1.5	0.0	0.0	0.0	0.0
IdaRose	6.5	2	7	5.5	15.3	10.1	4.5	0.0	0.7	0.0	15.0	0.0
NorDonna	4.5	3	8	5.5	4.2	0.8	1.8	0.0	1.6	0.0	5.0	0.0
Norland	1.0	3	8	4.5	9.1	0.7	4.2	4.2	0.0	10.0	0.0	0.0
Norland, Dark Red	1.0	3	8	5.0	5.8	0.9	1.5	3.4	0.0	15.0	0.0	0.0
Norland, Super Red	1.0	3	8	6.0	15.9	2.0	7.7	5.8	0.3	10.0	0.0	0.0
ND3196-1R	1.0	2	9	6.8	15.9	1.3	11.4	1.3	1.8	0.0	0.0	0.0
ND5084-3R	5.5	1	9	7.3	9.9	5.4	2.5	2.0	0.0	5.0	5.0	0.0
NY118	4.0	3	7	7.3	7.4	1.2	1.5	4.5	0.3	0.0	0.0	0.0
Red Companion	1.0	1	9	5.0	6.6	2.0	4.2	0.0	0.4	0.0	0.0	0.0
Red Pearl	1.5	1	7	6.5	11.0	0.4	6.1	0.0	4.5	0.0	0.0	0.0
Redsen	1.0	1	8	7.3	6.4	1.5	2.1	2.9	0.0	0.0	0.0	0.0
Rideau	3.5	2	6	4.5	17.2	3.4	8.6	5.0	0.1	0.0	0.0	0.0
T11-2	4.0	1	6	7.5	6.1	2.0	1.0	3.0	0.0	0.0	0.0	0.0
T15-1	1.5	2	7	4.5	2.1	0.9	1.2	0.0	0.0	0.0	5.0	0.0
T15-3	1.0	1	8	5.5	3.0	1.0	0.3	0.0	1.8	0.0	5.0	0.0
T17-2	1.0	8	9	5.0	11.3	1.8	4.4	1.2	3.9	0.0	0.0	0.0

¹See the standard NE-184 rating system for a key to these rating scales.

²Based on a 10-tuber sample from each replication. The tubers were taken from the size 3 and 4 categories.

Upstate New York Table 13. Total yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, and specific gravity for the russet/long tuber variety trial (replicated and observational) grown at Freeville, New York - 2001.

Genotype Variety or Clone	Total Yield Cwt/A	Mkt. Yield ² % of Cwt/A	Size Distribution ¹ (% of total yield)					Size Distrib. (%)			Mean Tuber #/ft. wt.(oz.)	Spec. Grav.		
			1	2	3	4	5	4 to 12 oz.	over 8 oz.	over 12 oz.				
<i>replicated:</i> ³														
B1409-2	428	308	177	14	45	27	11	3	72	41	14	7.8	5.7	84
Gem Russet	400	254	146	15	42	30	9	4	72	43	13	7.0	5.9	84
Russet Burbank	499	174	100	14	37	27	10	12	64	49	22	8.5	6.2	81
Russet Legend	326	202	116	6	25	30	22	18	54	70	40	4.1	8.3	77
Russet Norkotah	312	187	108	15	33	26	20	6	60	52	25	5.3	6.2	68
Shepody	440	271	156	13	39	32	11	6	71	48	16	7.4	6.2	83
<i>observational:</i> ³														
B1957-1	415	230	132	14	44	25	13	4	69	42	17	7.3	5.9	74
B2048-4	147	86	49	35	58	6	0	0	65	6	0	4.1	3.7	75
B2049-2	347	235	135	10	42	34	9	5	76	48	14	6.1	5.9	78
B2054-6	577	156	90	2	15	21	27	35	36	83	61	5.8	10.4	77
B2056-14	298	219	126	14	54	15	12	5	68	32	18	5.7	5.4	65
Waller-Duncan														
LSD (k=100)	35	57										1	1	3
C.V. (%)	(6)	(16)										(11)	(13)	(3)

¹Tuber size (weight) classes: 1 = under 4 oz., 2 = 2 to 8 oz., 3 = 8 to 12 oz., 4 = 12 to 16 oz., and 5 = over 16oz.

²Marketable Yield: total yield - (under 4 oz. + over 16 oz. + external defects).

³Plot number: B1409-2 and the 5 named varieties were replicated 4 times, the last 5 B-series clones were in single observational plots.

Plant Date: May 2

Maturity Ratings: Sep. 4

Vinekill Date: Sep. 6

Harvest Date: Sep 21

Upstate New York Table 14. Plant maturity, tuber shape and appearance, and percentage of external and internal tuber defects for the russet/long tuber variety trial (replicated and observational) grown at Freeville, New York - 2001.

Genotype Variety or Clone	Plant ¹ Mat. At Vinekill	Tuber Attributes ¹			External Tuber Defects (%)						Int. Tuber Defects (%) ²		
		Tuber Shape	Skin Text.	Tuber Appear.	Total Defects	Sun- Green	Mis- shapen	Growth Cracks	Rot	Holl. Heart	Vasc. Disc.	Int. Nec.	
<i>replicated:</i> ³													
B1409-2	1.5	6	4	3.9	11.0	1.7	6.3	1.5	1.5	0.0	0.0	0.0	0.0
Gem Russet	3.3	7	4	5.1	17.1	6.7	7.4	0.3	2.8	0.0	5.0	0.0	0.0
Russet Burbank	3.8	8	3	5.1	39.3	8.8	28.7	1.1	0.7	7.5	0.0	0.0	2.5
Russet Legend	3.8	8	4	6.9	14.4	2.8	6.1	5.6	0.0	0.0	5.0	0.0	0.0
Russet Norkotah	1.8	7	3	5.5	19.5	5.9	11.5	1.9	0.1	12.5	0.0	0.0	0.0
Shepody	2.5	8	7	4.3	20.0	6.5	12.9	0.0	0.7	0.0	5.0	0.0	0.0
<i>observational:</i> ³													
B1957-1	2.0	7	4	4.0	26.2	9.5	7.5	8.5	0.8	40.0	0.0	0.0	0.0
B2048-4	1.0	4	3	5.0	6.3	1.8	4.4	0.0	0.0	0.0	0.0	0.0	0.0
B2049-2	2.0	4	2	8.0	17.0	2.4	0.4	14.2	0.0	0.0	0.0	0.0	0.0
B2054-6	2.0	8	8	5.0	36.0	9.0	22.2	4.8	0.0	20.0	0.0	0.0	0.0
B2056-14	2.0	6	47	5.5	6.9	1.9	2.3	2.7	0.0	0.0	0.0	0.0	0.0

¹See the standard NE-184 rating system for a key to these rating scales.

²Based on a 10-tuber sample from each replication. The tubers were taken from the size 3 and 4 categories.

³Plot number: B1409-2 and the 5 named varieties were replicated 4 times, the last 5 B-series clones were in single observational plots.

Upstate New York Table 15. Yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, percentage of defects, and specific gravity for Wayne County muck soil red-skinned variety trial grown near Savannah, New York - 2001.

Variety or Clone	Total Yield Cwt/A	Mkt. Yield		Size Distribution ¹ (% of total yield)				Mean Tuber		Percent External Tuber Defects					Percent Internal Tuber Defects					Spec. Grav.
		Cwt/A	Std.	1	2	3	4	#/ft	wt(oz)	S	N	K	B	GC	ROT	HH	VD	NEC		
A92657-1R	457	302	88	10	62	25	2	9.7	4.9	18	2	0	1	0	5	0	0	71		
ARSW97-4290-1	594	452	131	15	81	4	0	16.9	3.6	6	1	2	0	0	0	0	61			
B0984-1	490	391	114	5	59	34	2	9.8	5.2	14	0	0	0	0	20	0	68			
B1523-4	553	420	122	14	70	15	0	15.2	3.8	6	3	0	1	0	0	0	68			
B1952-4	364	191	55	27	61	12	0	11.7	3.2	18	2	0	0	0	0	0	82			
B2017-2	430	187	54	44	56	0	0	17.3	2.6	5	6	0	2	0	20	0	70			
Chieftain	488	344	100	9	71	16	4	11.3	4.5	16	0	1	0	0	0	30	66			
CO86218-2	430	305	89	18	70	11	1	11.2	4.0	7	2	0	0	0	0	0	73			
Dakota Rose	446	317	92	14	74	12	0	10.9	4.3	12	2	0	1	0	0	0	60			
Ida Rose	604	441	128	8	48	41	3	12.3	5.2	10	4	0	2	0	15	5	64			
MN15620	396	224	65	20	80	0	0	11.1	3.7	10	12	0	1	0	0	0	76			
Nordonna	444	343	100	14	80	6	0	11.6	4.0	9	1	0	0	0	15	0	67			
Norland	393	273	79	13	82	4	0	11.2	3.6	14	0	1	2	0	0	0	60			
Norland, Dark Red	436	285	83	20	73	7	0	10.8	4.2	13	1	0	0	0	0	0	61			

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Upstate New York Table 15. -(Cont.)- Yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, percentage of defects, and specific gravity for Wayne County muck soil red-skinned variety trial grown near Savannah, New York - 2001.

Variety or Clone	Total Yield Cwt/A	Mkt. Yield		Size Distribution ¹ (% of total yield)				Mean Tuber		Percent External					Percent Internal					Spec. Grav.
		% of						#/ft	wt(oz)	Tuber Defects					Tuber Defects					
		Cw/A	Std.	1	2	3	4			S	N	K	B	GC	ROT	HH	VD	NEC		
Norland, Super Red ND3196-1R	456	276	80	7	65	25	2	8.7	5.5	23	1	3	1	0	0	0	30	55		
	405	281	82	13	73	14	0	10.0	4.3	11	6	0	1	0	0	0	25	68		
ND5084-3R NY118	600	494	144	6	57	35	2	11.2	5.6	8	1	0	1	0	5	0	56			
	491	380	110	12	79	9	0	12.6	4.0	8	2	0	0	0	0	0	63			
Red Companion Red Pearl	358	185	54	33	67	0	0	13.2	2.8	13	2	0	0	0	5	0	65			
	175	27	8	78	22	0	0	10.8	1.7	7	1	0	0	0	0	15	66			
Redsen Rideau	414	252	73	27	72	1	0	13.8	3.1	12	1	0	0	0	0	0	65			
	539	452	131	5	51	40	4	9.8	5.7	6	1	0	1	0	0	0	75			
T11-2 T15-1	541	414	120	17	75	8	1	14.4	3.9	5	1	0	0	0	0	0	66			
	525	304	88	39	60	1	0	19.7	2.8	2	1	0	0	0	0	0	67			
T17-2 Ware's Pride	417	196	57	21	73	6	0	11.7	3.7	29	2	0	1	0	0	0	65			
	461	283	82	20	75	5	0	13.3	3.6	17	0	1	1	0	0	5	63			

¹Tuber size classes:

1 = under 2" dia., 2 = 2" to 3" dia., 3 = 3" to 4" dia., and 4 = over 4" dia.

Plant Date: May 11

Vinekill Date: September 7 (note: all vines dead Sept 1)

Harvest Date: October 1

Vinekill: Gramoxone (1.5 pt/a) + Kinetic (3 pts in 100 gal.)

Irrigation: none

Fertilizer: 850 lbs/a (10% N, 9.6% P, 34% K, 2.2% Mg, 1.2% S, .56% Mn) at planting, plus 500 lbs/a 22-0-21 sidedressed

Note: This trial had two replications, except there was only one plot each of ARSW97-4290-1, B0984-1, B1523-4, B1952-4, B2017-2, and MN15620.

Upstate New York Table 16. Yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, percentage of defects, and specific gravity for Wayne County muck soil white-skinned variety trial grown near Savannah, New York - 2001

Variety or Clone	Total Yield Cwt/A	Mkt. Yield		Size Distribution ¹ (% of total yield)				Mean Tuber		Percent External Tuber Defects					Percent Internal Tuber Defects					Spec. Grav.
		Cwt/A	% of Std.	1	2	3	4	#/ft	wt(oz)	SEN	KNB	GC	ROT	THH	VD	NEC	THH	VD	NEC	
Amandine	430	224	52	18	76	6	0	12.2	3.7	23	4	0	1	0	0	0	0	0	0	66
Atlantic	572	426	100	9	61	29	1	12.0	5.0	12	2	0	1	0	0	0	0	0	30	82
Cynthia	461	321	75	14	73	12	0	10.4	4.6	7	9	1	0	0	0	5	0	0	0	64
Divina	597	415	97	7	53	37	3	10.7	5.8	10	9	0	2	0	0	0	0	0	0	64
Eva	402	301	71	17	79	4	0	10.9	3.9	6	1	0	2	0	0	0	0	0	5	73
Genesee	531	391	92	9	69	21	0	11.2	4.9	16	1	0	0	0	0	0	0	0	0	64
Katahdin	498	342	80	10	60	29	1	10.7	4.8	17	0	0	3	0	0	0	0	0	0	68
Keuka Gold	568	449	105	14	71	15	0	15.2	3.9	7	0	0	0	0	0	0	0	0	0	71
Monona	475	386	91	6	70	24	0	9.2	5.4	10	2	0	1	0	0	0	0	0	5	67
NY112	571	484	114	7	65	29	0	14.4	4.2	7	0	0	1	0	0	0	0	0	0	74
NY115	426	256	60	12	51	34	2	8.8	5.0	24	0	0	1	0	0	5	0	0	0	76
NY121	347	195	46	34	63	3	0	12.3	2.9	7	2	0	0	0	0	0	0	0	0	75
NY125	532	318	75	22	74	4	0	16.0	3.5	18	0	0	1	0	0	0	0	0	5	70
NYE11-45	480	366	86	13	74	12	1	9.7	5.3	7	3	0	0	0	0	0	0	0	10	62

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Upstate New York Table 16. -(Cont.)- Yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, percentage of defects, and specific gravity for Wayne County muck soil white-skinned variety trial grown near Savannah, New York - 2001

Variety or Clone	Total Yield		Mkt. Yield		Size Distribution ¹ (% of total yield)				Mean Tuber		Percent External Tuber Defects						Percent Internal Tuber Defects			Spec. Grav.
	Cwt/A	Yield	Cwt/A	% of Std.	1	2	3	4	#/ft	wt(oz)	SUN	KNB	GC	ROT	HH	VD	NEC			
Penta	428		284	67	16	68	17	0	10.8	4.1	7	11	0	0	0	10	0	73		
Reba	449		368	86	5	71	23	1	9.4	5.0	11	1	0	0	0	0	0	70		
Salem	515		386	91	6	59	30	5	9.6	5.5	9	5	0	1	0	0	0	63		
Sandy	538		373	87	18	76	5	0	15.9	3.5	7	5	0	1	0	10	0	88		
Superior	411		335	79	9	68	23	0	8.7	4.9	5	4	0	0	0	15	0	73		
Sylvia	482		328	77	12	61	25	2	10.4	4.8	14	4	0	0	0	0	0	61		
T2-2	539		455	107	6	70	24	0	10.7	5.2	7	1	0	2	0	0	0	72		
T27-21	505		359	84	17	71	11	1	16.2	3.3	10	1	1	1	0	0	0	74		
T35-34	601		422	99	20	68	12	0	14.8	4.2	9	0	0	0	0	5	0	77		
Yukon Gold	381		263	62	4	49	36	11	5.8	6.9	15	1	0	0	0	25	10	75		

¹Tuber size classes:
Plant Date: May 11

1 = under 2" dia., 2 = 2" to 3" dia., 3 = 3" to 4" dia., and 4 = over 4" dia.
Vinekill Date: September 7 (note: all vines dead Sept 1)
Vinekill: Gramoxone (1.5 pt/a) + Kinetic (3 pts in 100 gal.)

Harvest Date: October 1
Irrigation: none

Fertilizer: 850 lbs/a (10% N, 9.6% P, 34% K, 2.2% Mg, 1.2% S, .56% Mn) at planting, plus 500 lbs/a 22-0-21 sidedressed
Note: This trial had two replications, except there was only one plot each of Divina, Genesee, and Penta.

Upstate New York Table 17. Yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, percentage of defects, and specific gravity for Steuben County chipstock variety trial grown near Arkport, New York - 2001.

Variety or Clone	Total Yield Cwt/A	Mkt. Yield		Size Distribution ¹ (% of total yield)				Mean Tuber		Percent External Tuber Defects					Percent Internal Tuber Defects					Spec. Grav.
		Cwt/A	Std.					#/ft	wt(oz)											
				1	2	3	4			SUN	KNB	GC	ROT	THH	VD	NEC				
Atlantic Kanona	307	252	100	4	57	30	8	5.3	6.4	2	3	0	0	0	20	5	94			
	263	230	91	4	51	39	6	4.4	6.6	1	1	1	0	0	15	0	89			
NY102	254	225	89	5	72	22	2	5.0	5.6	2	3	0	0	0	0	0	97			
NY112	274	252	100	4	53	43	1	4.9	6.1	2	1	0	0	0	10	0	90			
NY115	204	175	70	7	67	23	2	4.4	5.2	4	1	0	0	0	0	0	84			
NY120	306	253	101	3	39	47	11	4.7	7.3	1	2	1	0	0	65	0	92			
NY124	258	213	85	6	56	35	3	4.8	6.0	3	4	1	0	0	25	0	94			
Pike	258	233	92	6	75	19	0	5.7	5.0	1	3	0	0	0	10	0	91			
Reba	246	217	86	5	65	29	0	5.0	5.4	3	2	2	0	0	20	0	79			
Snowden	323	287	114	7	78	15	0	7.6	4.7	1	3	0	0	0	45	0	96			
T2-2	334	291	115	3	37	53	7	4.9	7.6	1	2	0	0	0	5	0	85			
T3-5	302	222	88	2	32	51	16	4.1	8.3	8	1	0	1	0	10	0	96			
T35-34	330	291	115	9	81	9	0	8.4	4.4	2	1	0	0	0	0	0	88			

Note: This trial had two replications, except there was only one plot each of Pike and Reba.

¹Tuber size classes: 1 = under 2" dia., 2 = 2" to 3" dia., 3 = 3" to 4" dia., and 4 = over 4" dia.

Plant Date: May 17

Vinekill Date: September 21 (1 pt/A Diquat)

Fertilizer: 1600 lb/A 8-16-8

Harvest Date: October 4

Sidedress: 150 lb/A 34-0-0 (NH₄NO₃)

Vinekill Date: September 26 (1 pt/A Diquat)

Irrigation: 3 Times

Upstate New York Table 18. Yield, marketable yield, percentage of yield by grade size distribution, mean tuber number per foot and weight, percentage of defects, and specific gravity for Wyoming County chipstock variety trial grown near Eagle, New York - 2001.

Variety or Clone	Total Yield Cwt/A	Mkt. Yield		Size Distribution ¹ (% of total yield)				Mean Tuber		Percent External Tuber Defects					Percent Internal Tuber Defects					Spec. Grav.
		% of						#/ft wt(oz)												
		Cwt/A	Std.	1	2	3	4			SUN	KNB	GC	ROT	THH	VD	NEC				
Atlantic Kanona	371	322	100	5	49	40	7	6.6	6.2	1	1	0	0	0	10	0	89			
	343	272	84	4	45	43	7	6.1	6.3	8	0	1	1	0	55	0	78			
NY102 NY112 NY115 NY120 NY124	325	300	93	6	71	23	0	7.3	4.9	1	0	0	0	0	15	0	92			
	486	445	138	5	58	37	0	8.7	6.2	3	0	0	0	0	20	0	87			
	286	253	79	7	64	28	1	5.8	5.5	4	0	0	0	0	40	0	74			
	360	324	101	2	41	51	6	5.5	7.3	1	1	0	0	0	85	0	90			
	368	340	106	5	68	26	1	8.2	5.0	2	0	0	0	0	40	0	89			
Pike Reba Snowden	368	326	101	9	83	8	0	9.6	4.2	2	0	0	0	0	10	0	90			
	288	250	78	10	83	7	0	7.6	4.2	3	0	0	0	0	0	0	76			
	432	388	121	6	69	24	2	9.4	5.1	2	1	0	0	0	65	0	90			
T2-2 T3-5 T35-34	375	349	108	4	62	33	1	7.2	5.8	1	0	0	0	0	0	0	80			
	392	306	95	5	44	45	6	6.0	7.3	10	0	1	0	0	10	0	85			
	362	307	95	14	77	9	0	10.2	3.9	2	0	0	0	0	25	5	82			

Note: This trial had two replications, except there was only one plot each of Pike and Reba.

¹Tuber size classes: 1 = under 2" dia., 2 = 2" to 3" dia., 3 = 3" to 4" dia., and 4 = over 4" dia.

Plant Date: May 24 Vinekill Date: September 20 (3 pt/A Rely)

Fertilizer: 30 lb/A 28-0-0 preplant May 4

600 lb/A 12-0-31 plus 80 gal/A (11.2 lb/GAL) 7.5-22-7 at planting

150 lb/A 46-0-0 sidedress in July

Harvest Date: October 10

Irrigation: 3 times

Upstate New York Table 19. 2001 Potato Variety Trials¹ - Chip Color Agtron Readings²

Variety/Clone	Freeville ³										Upstate Counties ³					
	Early		Medium		Med-Late		Late		CU Clone		Steuben		Wyoming		Steuben	
	Field		45 40		45 40		45 40		45 40		Cornell		Cornell		Grower	
	44.0 57.0		--		--		--		--		45 40		45 40		52 48	
AMANDINE	44.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--
ANDOVER (NYE55-4)	57.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--
ATLANTIC	--		59.8	57.7	61.4	55.9	57.2	57.4	65.7	58.6	60.7	58.2	53.2	55.8	64.6	57.4
CASTILE	--		--	--	52.1	49.4	--	--	--	--	--	--	--	--	--	--
CYNTHIA	38.3		--	--	--	--	--	--	--	--	--	--	--	--	--	--
ENVOL	50.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--
ERAMOSA	49.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--
EVA	--		59.9	57.4	--	--	--	--	--	--	--	--	--	--	--	--
KANONA	--		--	--	62.9	57.3	--	--	--	--	59.1	63.0	55.3	59.4	65.2	56.1
MONONA	--		64.9	60.1	--	--	--	--	--	--	--	--	--	--	--	--
PIKE (NYE55-35)	--		--	--	--	--	60.1	56.1	--	--	64.2	53.4	55.4	63.3	58.8	58.7
REBA (NY87)	--		61.6	55.8	--	--	--	--	--	--	59.0	53.2	57.4	58.3	66.0	56.9
SANDY	--		--	--	--	--	55.5	50.6	--	--	--	--	--	--	--	--
SNOWDEN	--		--	--	69.3	64.2	61.4	64.6	66.3	65.3	61.6	63.9	64.1	64.8	62.4	63.8
SUPERIOR	48.7		--	--	--	--	--	--	--	--	--	--	--	--	--	--
AF1455-20	--		--	--	53.8	52.3	--	--	--	--	--	--	--	--	--	--
AF1763-2	48.7		--	--	--	--	--	--	--	--	--	--	--	--	--	--
AF1938-3	53.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--
B0766-3	--		65.2	53.6	--	--	--	--	--	--	--	--	--	--	--	--
B1425-9	--		--	--	--	--	58.6	48	--	--	--	--	--	--	--	--
B1752-5	--		--	--	--	--	--	--	42.1	31.2	--	--	--	--	--	--

(Continued on next page.)

Upstate New York Table 19. -(cont.)- 2001 Potato Variety Trials¹ - Chip Color Agron Readings²

Variety/Clone	Upstate Counties ³									
	Freeville ³					Steuben				
	Early Field	Medium		Med-Late		Late		CU Clone		Wyoming Cornell
		45	40	45	40	45	40	45	40	
B1806-8	--	--	--	--	--	--	--	48.3	45.5	--
B1870-3	--	--	--	--	--	--	--	28.8	31.8	--
NY102	--	--	--	67.3	61.3	--	--	63.1	63.5	62.2
NY112	--	--	--	--	--	59.9	63.7	65.0	63.8	63.4
NY115	--	69.6	59.9	--	--	--	--	62.6	63.8	64.3
NY120 (Q8-2)	--	--	--	66.4	62.1	--	--	61.7	59.2	56.4
NY124 (S14-2)	--	--	--	--	54.4	--	--	62.3	56.8	60.6
T2-2	--	--	--	--	--	53.6	49.8	59.7	46.3	52.2
T3-5	--	--	--	64.1	56.5	--	--	61.6	63.6	57.0
T28-1	59.7	--	--	--	--	--	--	--	--	--
T35-34	--	62.6	59.9	--	--	--	--	63.1	57.4	59.3
U47-2	--	--	--	65.3	57.3	--	--	--	--	--
U47-21	--	--	--	68.6	61.5	--	--	--	--	--
U100-87	--	--	--	--	--	--	--	61.0	60.3	--
U124-14	--	--	--	--	--	--	--	23.7	29.1	--
W1313	--	66.2	64.0	--	--	--	--	--	--	--

¹See Horticulture Report No. 10, Department of Horticulture, Cornell University, Ithaca, NY for cultural practices.

²Agron M600 Colorimeter readings. Standards for whole chips were disks 00 and 90. 200g samples of slices were taken from 15 tubers and fried in vegetable oil at 375°F. A minimum acceptable Agron would be 50.

³The Early trial at Freeville was chipped out of the field 2 days after harvest. The other Freeville trials and the county trials designated "Cornell" were stored in Cornell facilities at 45°F and 40°F. The "Grower" samples from the counties were stored in the growers' facilities at the temperatures specified. After warm-up, at 65°F for two weeks, the 45°F Freeville samples were chipped February 5-15, and the county 45°F samples stored at Cornell were chipped February 27-March 1. After warm-up for three weeks at 65°F, the 40°F Freeville samples were chipped March 7-March 19. The Steuben samples from the grower's storage were stored at 48°F and were chipped without warm-up on January 29. The Wyoming samples from the grower's storage were stored at 52°F and were chipped without warm-up on April 2.

Upstate New York Table 20. 2001 Freeville Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Early		Medium		M-Late		Late		CU Clone		Red/Purp		Rus/FF	
	ACD	SLG	ACD	SLG	AC	SLG	AC	SLG	ACD	SLG	ACD	SLG	ACD	SLG
AMANDINE	4.8	4.1	--	--	--	--	--	--	--	--	--	--	--	--
ALLEGANY	--	--	--	--	--	--	3.9	4.6	--	--	--	--	--	--
ANDOVER	4.5	3.6	--	--	--	--	--	--	--	--	--	--	--	--
ATLANTIC	--	--	3.7	3.1	3.9	3.8	3.5	3.4	4.1	3.5	--	--	--	--
CASTILE	--	--	--	--	4.7	4.0	--	--	--	--	--	--	--	--
CHIEFTAIN	--	--	--	--	--	--	--	--	--	--	4.3	4.7	--	--
CYNTHIA	4.7	4.7	--	--	--	--	--	--	--	--	--	--	--	--
DAKOTA ROSE	--	--	--	--	--	--	--	--	--	--	3.7	4.7	--	--
DIVINA	--	--	4.5	4.8	--	--	--	--	--	--	--	--	--	--
ELBA	--	--	--	--	--	--	4.7	4.3	--	--	--	--	--	--
ENVOL	3.5	4.9	--	--	--	--	--	--	--	--	--	--	--	--
ERAMOSA	4.1	4.5	--	--	--	--	--	--	--	--	--	--	--	--
EVA	--	--	3.7	4.3	--	--	--	--	--	--	--	--	--	--
GEM RUSSET	--	--	--	--	--	--	--	--	--	--	--	--	4.5	3.9
GENESEE	--	--	--	--	--	--	4.7	4.7	--	--	--	--	--	--
IDAROSE (A82705-1R)	--	--	--	--	--	--	--	--	--	--	4.0	4.6	--	--
KANONA	--	--	--	--	3.5	4.5	--	--	--	--	--	--	--	--
KATAHDIN	--	--	--	--	4.4	4.8	4.1	4.7	4.3	4.3	--	--	--	--
KENNEBEC	--	--	--	--	4.6	4.9	--	--	--	--	--	--	--	--
KEUKA GOLD	--	--	--	--	4.2	4.4	--	--	--	--	--	--	--	--
MONONA	--	--	4.3	4.7	--	--	--	--	--	--	--	--	--	--

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Upstate New York Table 20. - (cont'd)- 2001 Freeville Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Early		Medium		M-Late		Late		CU Clone		Red/Purp		Rus/FF	
	ACD	SLG	ACD	SLG	AC	SLG	AC	SLG	ACD	SLG	ACD	SLG	ACD	SLG
NORDONNA	--	--	--	--	--	--	--	--	--	--	4.3	4.3	--	--
NORLAND	--	--	--	--	--	--	--	--	--	--	4.0	4.7	--	--
NORLAND, DARK RED	--	--	--	--	--	--	--	--	--	--	3.5	4.6	--	--
NORLAND, SUPER RED	--	--	--	--	--	--	--	--	--	--	4.0	4.7	--	--
PENTA	--	--	--	--	3.5	4.5	--	--	--	--	--	--	--	--
PIKE	--	--	--	--	--	--	3.8	4.0	--	--	--	--	--	--
REBA (NY87)	--	--	3.3	4.9	--	--	--	--	--	--	--	--	--	--
RED COMPANION (W1100R)	--	--	--	--	--	--	--	--	--	--	3.5	4.1	--	--
RED PEARL (W84-75R)	--	--	--	--	--	--	--	--	--	--	3.9	4.3	--	--
REDSN	--	--	--	--	--	--	--	--	--	--	2.5	3.6	--	--
RIDEAU	--	--	--	--	--	--	--	--	--	--	4.6	4.0	--	--
RUSSETT BURBANK	--	--	--	--	--	--	--	--	--	--	--	--	4.7	4.4
RUSSETT LEGEND	--	--	--	--	--	--	--	--	--	--	--	--	4.5	4.4
RUSSETT NORKOTAH	--	--	--	--	--	--	--	--	--	--	--	--	3.2	4.1
SALEM (NY84)	--	--	4.6	4.9	--	--	--	--	--	--	--	--	--	--
SANDY	--	--	--	--	--	--	3.8	2.5	--	--	--	--	--	--
SHEPODY	--	--	--	--	--	--	--	--	--	--	--	--	4.8	4.3
SNOWDEN	--	--	--	--	3.7	3.8	3.5	3.1	3.1	3.1	--	--	--	--
SUPERIOR	3.5	3.5	--	--	--	--	--	--	4.3	4.7	--	--	--	--
SYLVIA	--	--	--	--	--	--	4.7	4.3	--	--	--	--	--	--
WARE'S PRIDE	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Upstate New York Table 20. - (cont'd)- 2001 Freeville Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Early		Medium		M-Late		Late		CU Clone		Red/Purp		Rus/FF	
	ACD	SLG	ACD	SLG	AC	SLG	AC	SLG	ACD	SLG	ACD	SLG	ACD	SLG
YUKON GOLD	--	--	4.9	3.7	--	--	--	--	--	--	--	--	--	--
A92657-1R	--	--	--	--	--	--	--	--	--	--	4.0	4.3	--	--
AF1455-20	--	--	--	--	3.9	4.5	--	--	--	--	--	--	--	--
AF1615-1	--	--	--	--	4.4	4.1	--	--	--	--	--	--	--	--
AF1758-7 (BC)	--	--	--	--	4.3	4.7	--	--	--	--	--	--	--	--
AF1763-2	4.4	4.7	--	--	--	--	--	--	--	--	--	--	--	--
AF1938-3	3.1	4.4	--	--	--	--	--	--	--	--	--	--	--	--
ARSW97-4290-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B0766-3	--	--	4.5	4.0	--	--	--	--	--	--	--	--	--	--
B0984-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B1409-2	--	--	--	--	--	--	--	--	--	--	--	--	4.3	4.5
B1425-9	--	--	--	--	--	--	4.5	4.2	--	--	--	--	--	--
B1523-4	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B1752-5	--	--	--	--	--	--	--	--	4.0	3.5	--	--	--	--
B1806-8	--	--	--	--	--	--	--	--	4.9	4.9	--	--	--	--
B1870-3	--	--	--	--	--	--	--	--	4.8	4.4	--	--	--	--
B1952-4	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B1957-1	--	--	--	--	--	--	--	--	--	--	--	--	4.0	3.0
B2048-4	--	--	--	--	--	--	--	--	--	--	--	--	4.2	3.8
B2049-2	--	--	--	--	--	--	--	--	--	--	--	--	3.4	3.0
B2054-6	--	--	--	--	--	--	--	--	--	--	--	--	2.2	4.2

(Continued on next page)

Update New York Table 20. - (cont'd)- 2001 Freeville Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Early		Medium		M-Late		Late		CU Clone		Red/Purp		Rus/FF	
	ACD	SLG	ACD	SLG	AC	SLG	AC	SLG	ACD	SLG	ACD	SLG	ACD	SLG
B2056-14	--	--	--	--	--	--	--	--	--	--	--	--	3.2	4.4
CO86218-2	--	--	--	--	--	--	--	--	--	--	4.3	4.4	--	--
MN15620	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ND3196-1R	--	--	--	--	--	--	--	--	--	--	4.1	4.6	--	--
ND5084-3R	--	--	--	--	--	--	--	--	--	--	3.6	4.6	--	--
NY102	--	--	--	--	2.8	4.7	--	--	--	--	--	--	--	--
NY112	--	--	--	--	--	--	3.5	3.7	--	--	--	--	--	--
NY115	--	--	2.9	3.3	--	--	--	--	--	--	--	--	--	--
NY118 (P49-19R)	--	--	--	--	--	--	--	--	--	--	4.7	4.7	--	--
NY120 (Q8-2)	--	--	--	--	2.2	2.8	--	--	--	--	--	--	--	--
NY121	--	--	--	--	4.3	1.9	--	--	--	--	--	--	--	--
NY125 (S28-2)	--	--	4.7	4.3	--	--	--	--	--	--	--	--	--	--
NYE11-45	--	--	--	--	--	--	3.9	4.4	--	--	--	--	--	--
T2-2	--	--	--	--	--	--	4.8	4.8	--	--	--	--	--	--
T3-5	--	--	--	--	3.5	3.6	--	--	--	--	--	--	--	--
T11-2	--	--	--	--	--	--	--	--	--	--	4.2	4.4	--	--
T15-1	--	--	--	--	--	--	--	--	--	--	4.6	4.4	--	--
T17-2	--	--	--	--	--	--	--	--	--	--	4.6	4.4	--	--
T20-15	--	--	4.4	4.4	--	--	--	--	--	--	--	--	--	--
T27-21	--	--	4.3	4.6	--	--	--	--	--	--	--	--	--	--
T28-1	4.5	3.9	--	--	--	--	--	--	--	--	--	--	--	--

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Upstate New York Table 20. - (cont'd)- 2001 Freeville Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Early		Medium		M-Late		Late		CU Clone		Red/Purp		Rus/FF	
	ACD	SLG	ACD	SLG	AC	SLG	AC	SLG	ACD	SLG	ACD	SLG	ACD	SLG
T35-34	--	--	4.7	2.1	--	--	--	--	--	--	--	--	--	--
T88-19	--	--	--	--	--	--	--	--	4.3	5.0	--	--	--	--
U47-2	--	--	--	--	3.9	2.9	--	--	--	--	--	--	--	--
U47-21	--	--	--	--	3.5	3.3	--	--	--	--	--	--	--	--
U100-87	--	--	--	--	--	--	--	--	3.6	4.6	--	--	--	--
U124-14	--	--	--	--	--	--	--	--	4.4	3.5	--	--	--	--
W1313	--	--	3.1	3.3	--	--	--	--	--	--	--	--	--	--

¹Five tubers from each replicaton were peeled, dipped in a 0.5% sodium bisulfite solution, and cooked in an autoclave for 8-1/2 minutes at 350°F, followed by a 15 minute slow exhaust. After removal from the autoclave and cooling for 10 minutes at room temperature, the tubers were rated on a scale of 1 to 5, with 5 = no after-cooking darkening or sloughing, and 1 = bad after-cooking darkening or sloughing. A minimum score of 3 would probably be acceptable. These trials were stored at 50°F until the time of cooking, which was done January 8-10, 2002.

Upstate New York Table 21 . 2001 County Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Wayne-Red		Wayne-White		Steuben		Wyoming	
	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG
AMANDINE	---	---	4.9	4.7	---	---	---	---
ATLANTIC	---	---	4.0	3.6	2.9	2.4	3.7	2.6
CHIEFTAIN	4.9	4.8	---	---	---	---	---	---
CYNTHIA	---	---	5.0	5.0	---	---	---	---
DAKOTA ROSE	3.8	4.8	---	---	---	---	---	---
DIVINA	---	---	4.8	5.0	---	---	---	---
EVA	---	---	3.7	3.9	---	---	---	---
GENESEE	---	---	4.4	4.4	---	---	---	---
IDAROSE	4.9	4.8	---	---	---	---	---	---
KANONA	---	---	---	---	3.0	2.6	2.6	2.8
KATAHDIN	---	---	4.8	4.8	---	---	---	---
KEUKA GOLD	---	---	4.9	4.7	---	---	---	---
MONONA	---	---	4.9	4.9	---	---	---	---
NORDONNA	4.7	4.8	---	---	---	---	---	---
NORLAND	3.9	4.9	---	---	---	---	---	---
NORLAND, DARK RED	3.4	5.0	---	---	---	---	---	---
NORLAND, SUPER RED	3.7	4.7	---	---	---	---	---	---
PENTA	---	---	5.0	4.4	---	---	---	---
PIKE (NYE55-35)	---	---	--	--	4.4	3.0	3.6	3.0
REBA (NY78)	---	---	4.7	4.9	3.0	4.4	3.2	3.6
RED COMPANION	3.9	3.3	---	---	---	---	---	---
RED PEARL	4.3	4.6	---	---	---	---	---	---
REDSN	3.7	4.0	---	---	---	---	---	---
RIDEAU	4.9	4.0	---	---	---	---	---	---
SALEM	---	---	4.6	4.5	---	---	---	---
SANDY	---	---	4.3	3.5	---	---	---	---
SNOWDEN	---	---	--	--	3.2	1.5	2.9	2.0
SUPERIOR	---	---	4.9	4.9	--	--	--	--
SYLVIA	--	--	5.0	4.9	---	---	---	---
WARE'S PRIDE	3.7	4.9	--	--	---	---	---	---
YUKON GOLD	---	---	4.8	4.8	---	---	---	---

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Upstate New York Table 21 .-(cont'd)- 2001 County Trials - After-cooking darkening and sloughing ratings¹

Variety/Clone	Wayne-Red		Wayne-White		Steuben		Wyoming	
	ACD	SLG	ACD	SLG	ACD	SLG	ACD	SLG
A92657-1R	4.3	4.9	---	---	---	---	---	---
ARSW97-4290-1	3.4	4.6	---	---	---	---	---	---
B0984-1	3.2	3.6	---	---	---	---	---	---
B1523-4	4.0	5.0	---	---	---	---	---	---
B1952-4	4.0	4.6	---	---	---	---	---	---
CO86218-2	4.8	4.9	---	---	---	---	---	---
MN15620	4.8	3.2	---	---	---	---	---	---
ND3196-1R	4.9	4.9	---	---	---	---	---	---
ND5084-3R	3.8	4.8	---	---	---	---	---	---
NY102	--	--	--	--	3.1	2.7	2.5	2.9
NY112 (P7-19)	--	--	4.7	4.5	3.2	2.8	3.3	1.5
NY115 (P23-31)	--	--	4.4	4.8	3.5	4.4	3.9	4.6
NY118	4.9	4.9	--	--	--	--	--	--
NY120 (Q8-2)	---	---	--	--	1.9	2.4	2.5	2.1
NY121	---	---	3.9	2.3	--	--	--	--
NY125	---	---	4.9	4.8	--	--	--	--
NYE11-45	---	---	4.9	4.7	---	---	---	---
T2-2	---	---	4.9	4.7	3.6	3.6	4.7	3.8
T3-5	---	---	---	---	2.5	1.4	3.1	2.2
T11-2	4.8	4.5	---	---	---	---	---	---
T15-1	4.8	4.2	---	---	---	---	---	---
T17-2	5.0	4.5	---	---	---	---	---	---
T27-21	---	---	4.2	3.9	---	---	---	---
T35-34	---	---	4.6	2.9	2.9	1.5	3.8	1.5

¹Five tubers from each replicaton were peeled, dipped in a 0.5% sodium bisulfite solution, and cooked in an autoclave for 8-1/2 minutes at 350°F, followed by a 15 minute slow exhaust. After removal from the autoclave and cooling for 10 minutes at room temperature, the tubers were rated on a scale of 1 to 5, with 5 = no after-cooking darkening or sloughing, and 1 = bad after-cooking darkening or sloughing. A minimum score of 3 would probably be acceptable. These trials were stored at 50°F until the time of cooking, which was done January 8-10, 2002.

NORTH CAROLINA

G. Craig Yencho and Mark E. Clough¹

Introduction:

The objectives of the North Carolina breeding and selection program are to develop improved potato cultivars (chippers, round whites and reds) with improved yield, processing and fresh market quality, resistance to diseases and pests, and tolerance to abiotic stresses, for use in the mid-Atlantic and Southeastern U.S. Because NC is a small producer of potatoes with no seed industry we achieve these goals by collaborating extensively with the larger breeding programs located primarily in the northeastern U.S. and by conducting early generation selection and germplasm enhancement research, and on-farm and research station variety evaluation trials.

Cooperating Breeding Projects:

Dr. Dave Douches, Michigan State University, East Lansing, MI

Dr. Kathleen Haynes, USDA-ARS Beltsville, MD

Dr. Susie Thompson and Mr. Bryce Farnsworth, North Dakota State University, Fargo, ND

Drs. Robert Plaisted and Walter DeJong, Cornell University, Ithaca, NY

Dr. Al Reeves (Late), University of Maine, Presque Isle, ME

Cooperating County Extension Specialists:

Mr. Tom Campbell, Elizabeth City, NC (Pasquotank Co.)

Mr. Bill Jester, Kinston, NC (Greene, Lenoir, and Wayne Co's.)

Mr. Fred May, Bayboro, NC (Pamlico Co.)

Mr. Richard Rhodes, Columbia, NC (Tyrrell Co.)

NC Research Station and On-farm Cooperator Locations:

Tidewater Research Station (NC Department of Agriculture & Consumer Services)/Vernon G. James Research and Extension Center, (NCSU), Plymouth, NC (Washington Co.)

Cooper Farms, Gumneck, NC (Tyrrell Co.)

James Brothers Farms, Weeksville, NC (Pasquotank Co.)

McCotter Farms, Vandemere, NC (Pamlico Co.)

Tull Hill Farms, Kinston, NC (Lenoir Co.)

Industry Cooperators:

HZPC America's Corp., Fredericton, N.B. Canada

Can Agrico Potato Corp., Grand Falls, N.B. Canada

Wise Foods Inc., Berwick, PA

Methods:

All yield trials were planted in a randomized complete block design with 4 replications except the unreplicated preliminary evaluation trial, which had only one plot per clone. Sixteen clones were evaluated on-farm at Cooper's and McCotter's, while 12 and 20 clones, respectively, were evaluated at the Tull Hill and James Brother's farms. Due to limited seed availability, only the most promising clones were evaluated at multiple sites. Plots consisted of 1 row with 28 hills spaced 9 inches apart. Spacing between rows was 38 inches at all sites, with the exception of the James Brother's Trial, which was on a 40 inch row spacing. Weed and pest control practices for on-farm trials were in accordance with those practiced by the cooperators. Tull Hill farms irrigated as needed, while all other sites were rainfed including the TRS/VGJREC.

The on-farm trials were dug using a single-row digger and hand harvested. The research station trials were harvested using a two-row harvester modified to dig one row at a time. All grower trials were graded using a portable Lockwood Grader which sorts to two grades: A+B's $\geq 1\frac{7}{8}$ "; and C's $< 1\frac{7}{8}$ ". The TRS/VGJREC trials were graded to five classes: 1's $< 1\frac{7}{8}$ "; 2's $> 1\frac{7}{8}$ to $2\frac{1}{2}$ "; 3's $> 2\frac{1}{2}$ to $3\frac{1}{4}$ "; 4's $> 3\frac{1}{4}$ to 4"; 5's > 4 ". Culls were removed and weighed separately in all trials. Each clone was evaluated for tuber quality and appearance during grading.

After grading and weighing, 40 marketable tubers (10 tubers/replication) were randomly sampled from each entry. The tubers were cut and scored for the presence of hollow heart, heat necrosis and any other internal defects. Subsamples of marketable tubers were also taken from each replication and bulked by entry for specific gravity readings and chipping tests. Specific gravity was determined using the weight-in-

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air/weight-in-water method. Chip ratings were done at the TRS/VGJREC and by Wise Foods, Berwick, PA.

Results:

2001 Season

Eastern North Carolina's potato season was highly variable this year. The season started with good conditions allowing us to plant on time. But then temperatures turned cool and many areas had a hard frost in the middle of April. The trials at the TRS/VGJREC were severely impacted, burning the 3" to 6" tall plants to the ground. Our grower trials fared better, however, our Weeksville plot on James Brother's farms was also burned severely. The remainder of the season consisted of periods of near drought alternating with heavy downpours.

Trial Summary

A total of 174 clones were evaluated during the 2001 season in variety trials. The data for each trial is summarized in Tables 1-8 with each having two parts, (a) being devoted to yield information, specific gravity readings, and chip color scores, and (b) providing potato plant and tuber quality characteristics. Chip evaluations were conducted by Wise Foods and at the TRS/VGJREC for all on farm trials, and solely at the TRS/VGJREC for all research station trials. Chipping at the TRS/VGJREC was done at least once within 48 hrs of harvest. To transport the potatoes for chip samples to Wise Foods in Berwick, PA the potatoes (5 tubers per sample) were placed in a plastic mesh bag and loaded on the back of a truck en-route to Wise. In most cases, chip evaluations were conducted within 72-96 hrs of digging.

On-Farm Trials

Cooper Variety Trial (Tables 1a and 1b)

Overall yields for Cooper's trial were moderate. Atlantic had a marketable yield of 333 cwt/A and was bested by five others: AF1569-2 (362 cwt/A), B1870-17 (356 cwt/A), Coastal Chip (356 cwt/A), Snowden (356 cwt/A), and B0766-3 (338 cwt/A). However, no clones yielded significantly greater than Atlantic, and only three clones yielded significantly less (AF1424-7, B1240-1, and SunCrisp). Only one clone received an overall appearance score of 8 (B0766-3). Others with an appearance rating of good (7) were: AF1569-2, Atlantic, B1870-17, and B1873-

6. Heat necrosis was not a problem in this trial this year as only three clones (AF1856-1, Atlantic, and Coastal Chip) had any evidence of internal heat necrosis and the average for each clone was an eight, which is very slight. A greater problem this year was brown center, which affected five clones: AF1856-1, Atlantic, B0178-34, Coastal Chip, and Superior. Of the five with brown center AF1856-1, and B0178-34 had the highest incidence at 32% and 30% respectively. All sixteen clones in this trial were chipped and six clones were assigned a rating of excellent or slightly better in both our chipping evaluations at the TRS/VGJREC and those by Wise: AF875-15 (2 TRS, 2 Wise), Atlantic (1.5 TRS, 2 Wise), B0766-3 (2 TRS, 2 Wise), NY120 (2 TRS, 2 Wise), Snowden (2 TRS, 2 Wise), and Sun Crisp (2 TRS, 2 Wise).

James Bros. Variety Trial (Tables 2a and 2b)

This trial should be considered a high stress trial. In mid-April, when the plants were 3 to 6" tall a hard frost froze virtually all the plants almost to ground level. As the season progressed, it became evident we also had a nut-grass problem throughout the trial and an infestation of wire grass in the first two replications. Despite these stressful conditions yields were relatively good and we were able to harvest all plots, providing us with an estimate of how well these clones perform under highly stressful conditions. With respect to marketable yields, three clones yielded slightly better than Atlantic (226 cwt/A). These were: Vivaldi (254 cwt/A), B0564-9 (237 cwt/A), and Snowden (229 cwt/A). Eight clones yielded equal to Atlantic (Table 2a.). One clone this year, Vivaldi, received an excellent overall appearance rating. Two other clones, B1752-5 and Snowden, were rated as good. B0564-8, one of the promising clones tested in NC for several years yielded equal to Atlantic, had an overall appearance score of 6 and its specific gravity was only 2 points lower than Atlantic. Vascular ring discoloration (VR) was the biggest problem in this trial in terms of internal defects. Eleven of twenty clones expressed some discoloration. Those clones found to have 10% or greater VR were: AF1668-60 (43%), NY120 (17%), and NorDonna (10%). Thirteen clones were chipped by Wise in this trial and fourteen were chipped at the TRS. Four clones: NY121 (1.5 TRS, 2 Wise), AF1565-12 (2 TRS, 2 Wise), Pike (2 TRS, 2 Wise), and Snowden (2 TRS, 2 Wise) were rated at 2 or better.

McCotter Variety Trial (Tables 3a and 3b)

Yields in McCotter's trial were lower compared to last year, and no clones yielded greater than Atlantic, which had a marketable yield of 266 cwt/A. Reba (259 cwt/A), MSE 149-5Y (258 cwt/A), Superior (257 cwt/A), B1497-22 (254 cwt/A), and Snowden (217 cwt/A) had statistically equal marketable yields. Only two clones, Atlantic and Pike, received overall appearance ratings of good (7). Heat necrosis was found in three clones (AF1470-6, AF1856-1, and MSE149-5Y) but was only slight with average ratings of eight for all three. Reduced yields may have been in part due to soft rot found within some clones because of heavy rains about 1 week before harvest. Most clones were culled for soft rot on the grader, but four clones were exceptionally susceptible: AF1565-12 (7%), AF1865-1 (5%), Eva (13%), and MES149-5Y (7%). Nine clones were chipped by Wise and twelve at the TRS. Only two clones chipped at both locations received a score of excellent: MSF373-8 (2 TRS, 2 Wise) and Snowden (2 TRS, 2 Wise).

Tull Hill Farms Red Variety Trial (Tables 4a and 4b)

Yields for the red variety trial were up this year from last. Dark Red Norland, the standard red, had a marketable yield of 204 cwt/A. All but two clones (Cherry Red at 201 cwt/A, and B0984-1 at 181 cwt/A) out-performed the standard. The five highest yielding clones in this trial were: B1758-3 (288 cwt/A), Michigan Purple (280 cwt/A), Superior (255 cwt/A), B1758-4 (249 cwt/A), and Dakota Rose (236 cwt/A). However, only two clones, B1758-3 and Michigan Purple, had marketable yields significantly greater than Dark Red Norland. Three clones were given an overall appearance rating of good: B1758-4, ND3196-1R, and Superior. NorDonna, an increasingly popular variety, yielded equal to Dark Red Norland. Other than discoloration of the vascular ring, which was not too severe, and a somewhat smallish size, NorDonna performed well with an overall appearance rating of 6. Heat necrosis was not severe in this trial and was only observed in four clones: B0984-1 (5% at 8), B1758-3 (7% at 8), B1758-4 (3% at 8), and Michigan Purple (3% at 8). The greater internal problem observed was discoloration of the vascular ring, which was observed in ten clones. Those with 10% or greater were: NorDonna (49%), Dakota Rose (46%), Dark Red Norland (45%), Ware's Pride (17%), B1523-4 (10%), and Superior (10%).

TRS/VGJREC Yield Trials

NE-184 Round White and Red Trials (reported in East Regional Potato Trials section)

Round White Trial One. (Tables 5a and 5b)

Of the 28 clones in this trial, six had marketable yields greater than Atlantic (264 cwt/A), but only CAPC10 (305 cwt/A) and Snowden (305 cwt/A) had significantly greater yield compared to Atlantic. Only three clones had overall appearance scores of good: B1591-1, CAPC25, and T28-1. Clones with slightly higher specific gravity than Atlantic were: AF1424-7, B1591-1, CAPC20, MSH095-4, and Snowden. Internal defects were slight to moderate. Heat necrosis was found in eight of the clones, with none averaging greater than eight, however, Atlantic had 25% incidence. Five clones with 10% or greater incidence of hollow heart were: Atlantic (28%), AF1565-12 (10%), and B1709-6 (10%). Brown center was found in almost half of the clones in this trial but only three: Atlantic (15%), B1709-6 (13%), and SC8801-2 (10%) had 10% or greater incidence. All samples were chipped at the TRS/VGJREC and nine clones received a rating of excellent or better.

Round White Trial Two. (Tables 6a and 6b)

In this trial, Atlantic had a marketable yield of 240 cwt/A. Four clones produced slightly higher yields: Snowden (286 cwt/A), T2-2 (251 cwt/A), B0178-34 (245 cwt/A), and NY112 (243 cwt/A). Clones with appearance ratings of good (7) or better were: B1870-1 (8), NY112 (8), and T2-2 (7). Heat necrosis was observed in seven clones, with two having greater than 10% incidence: B1884-9 (15%) and NY112 (13%). Hollow heart was observed in six clones with two (Atlantic, 18% and AF1856-1, 10%) having 10% or greater incidence. Brown center was found in nine clones. All clones in this trial were chipped and two had scores of excellent or better: B0178-34 (1.5) and T2-2 (2).

Unreplicated Trial (Tables 7a and 7b)

This trial provides a first look at a large number of clones produced by our cooperators. Clones with promising attributes such as high yield, exceptional appearance or high disease resistance are then evaluated in following years in replicated trials. Because the data is very preliminary and we screen so many clones, we will not comment on any of them but the data is provided so that our cooperators can

identify and comment on clones that appear promising.

NCSU/USDA-ARS Early Generation Project. (8a and 8b)

This project, conducted in cooperation with Dr. Kathleen Haynes, USDA-ARS, is an on-going effort focused on developing improved varieties more suitable to the range of climates and photoperiods found in the Mid-Atlantic and Southeastern U.S. In 2001, we conducted the first replicated trial of 17 clones which have been selected based on yield and appearance in Maine and/or North Carolina during the last three years. This year they were evaluated in Virginia, Maine and North Carolina. The results obtained in these trials are preliminary but are provided for those interested in seeing how some of our early generation materials are performing at this point.

Overall Summary

The USDA clones with the most potential as chippers were: B0178-34, B0766-3, B1240-1, and B1591-1. In all cases yields were good and chip scores were typically around 2. The table stock clones from the USDA with the most potential were B1752-5 a round yellow-flesh potato, B1758-4 a red, and B1816-5 a purple-skinned yellow-flesh. All three had low incidence of internal defects. B1816-5 may, however be highly susceptible to silver scurf, an external tuber defect of increasing importance. B0564-8 is also still very promising as a potential dual purpose clone. Since 1995 it has been evaluated in 22 trials and its marketable yield has been 111% of Atlantic. It also has very low incidence of internal heat necrosis compared to Atlantic and its specific gravity is only three or four points lower. This clone is currently being evaluated in several large-scale grower trials in NC and elsewhere.

Clones from the University of Maine showing the most promise were: AF1424-7, AF1455-20, AF1469-2, and AF1763-2. Their overall yields were less than Atlantic and gravities were lower, but these clones had no heat necrosis. Also, they typically chipped as well as or slightly better than Atlantic.

From Cornell University: Eva, T2-2, Keuka Gold, and NY112, performed well. However, Keuka Gold and NY112 suffer from heat necrosis so they may not be suitable for North Carolina. Gravities for all four were lower than Atlantic, but yields were higher with the exception of Eva.

From North Dakota the best red was NorDonna. However, we have seen a fair amount of vascular ring and secondary growth problems in this clone and growers should pay attention to vine killing.

Two clones from Michigan that chipped well were: MSH031-5 and MSH095-4. These were seen on a limited basis but had comparable gravity and yield to Atlantic. They also chipped better and had low incidence of any internal defects.

The private industry clones that performed the best were CAPC20 (a chipper), and CAPC25 (a yellow-flesh table stocker) from CanAgrico. Vivaldi, a medium to large, yellow-flesh, oblong potato from HZPC, was also very attractive.

V. ACKNOWLEDGMENTS

This work could not be conducted without the assistance of the growers, county extension agents and NCDA&CS TRS staff. We are grateful for their continued support and assistance. Wise Foods, Berwick, PA is also gratefully acknowledged for conducting chip tests. HZPC Americas Corp., and CanAgrico provided unrestricted gifts for variety evaluation. Seed for the trials were provided by: Dr. Dave Douches, Michigan State University; Dr. Kathleen Haynes, USDA/ARS, Beltsville, MD; Mr. Bryce Farnsworth, North Dakota State University; Drs. Robert Plaisted and Walter DeJong, Cornell University; Dr. Greg Porter, University of Maine; Dr. Al Reeves, University of Maine; and from HZPC Americas Corp., and CanAgrico. Also a special thanks goes to Agway Seed Potato Department for their efforts to procure small amounts of seed for shipment to NC. This project is funded in part by The North Carolina Potato Growers Association and the USDA CSREES. Their continuing support is much appreciated.

NORTH CAROLINA Table 1a. Cooper Farms Variety Trial, Tyrrell Co. Planted 3-9-01. Harvested 6-27-01 (110 DAP).

CLONE	Total Yield		Marketable Yield		Size Distribution by Class				Specific Gravity ¹	Chip Color ²	
	cwt/A	%	cwt/A	%	(% of total yield)			TRS		Wise	
					≥ 1 7/8"	< 1 7/8"	Culls				
AF1424-7	238		218	67	92	3	5		1.068	3	2
AF1569-2	392		362	109	92	4	4		1.056	3	3
AF1856-1	291		270	81	93	1	6		1.063	3	3
AF875-15	341		277	83	82	4	14		1.069	2	2
Atlantic	367		333	100	91	4	5		1.068	1.5	2
B0178-34	361		311	94	86	4	10		1.071	2.5	2
B0766-3	363		338	102	93	4	3		1.067	2	2
B1240-1	296		268	81	91	3	6		1.060	2	3
B1870-17	423		356	108	84	5	11		1.052	2	3
B1873-6	300		270	81	90	7	3		1.068	2.5	2
Coastal Chip	415		356	108	86	4	10		1.061	2.5	2
NY120	333		302	91	91	2	7		1.064	2	2
SC8801-2	329		291	88	89	1	11		1.049	4	4
Snowden	383		356	107	93	3	4		1.066	2	2
Suncrisp	335		263	79	79	5	16		1.066	2	2
Superior	340		306	92	90	3	7		1.064	2.5	4
Grand Mean	344		305								
CV (%)	13		14								
LSD (K=100)	63		63								

¹ Determined by weight in air/water method.

² Chip Color Ratings conducted by Wise Foods Inc. and the NCSU potato breeding program at the TRS/VGJREC:

1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

NORTH CAROLINA Table 1b. Cooper Farms Variety Trial, Tyrrell Co. Planted 3-9-01. Harvested 6-27-01 (110 DAP).

CLONE	Plant Data ¹			Tuber Data ¹							Internal Defects ² (no./40 tubers)							Comments ³		
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR		BC	SR
AF1424-7	5	9	9	5	6	7	5	4	3	7	7	7	3	0	-	0	1	0	0	GC, MS, DSA, RZ, SCB
AF1569-2	6	9	9	6	6	5	7	7	2	8	7	7	7	0	-	0	0	0	0	SCB
AF1856-1	7	9	8	6	6	6	4	7	3	6	7	8	4	1	2	7	1	13	0	DSA, DAE, MS, GC
AF875-15	6	8	8	5	6	6	5	7	3	6	7	8	3	0	-	0	0	0	0	MS, DAE, GC
Atlantic	6	8	8	6	6	5	5	7	2	7	6	8	7	3	4	0	0	2	0	MS, GC, SS
B0178-34	8	9	9	7	6	7	4	6	3	8	6	7	5	0	-	0	2	12	0	SG, SCB, MS, GC
B0766-3	6	8	8	5	6	5	7	8	2	8	6	7	8	0	-	0	1	0	0	SR, MS, DAE, SCB
B1240-1	9	9	7	8	6	5	5	5	4	8	8	8	4	0	-	0	0	0	0	MS, GC
B1870-17	8	9	8	7	6	5	7	6	3	8	7	8	7	0	-	0	0	0	0	SG, MS, SS, GC
B1873-6	5	8	8	5	6	5	7	7	1	8	4	8	7	0	-	0	1	0	0	SG, SCB, MS, DAE, SR
Coastal Chip	6	8	8	5	6	6	7	7	2	5	6	7	3	4	8	0	0	4	0	MS, SCB, DSA, DAE
NY120	6	8	8	6	6	5	4	7	3	7	5	7	5	0	-	0	1	0	0	PTS, MS, SS
SC8801-2	9	9	8	8	6	7	5	3	5	5	8	7	4	0	-	1	1	0	0	MS, SS, SR
Snowden	9	9	7	8	6	5	7	7	2	5	4	8	5	0	-	0	0	0	0	DAE, MS, SS
Suncrisp	9	8	9	8	6	6	5	7	2	7	5	8	4	0	-	1	0	0	0	MS, SG
Superior	6	8	8	4	6	6	5	7	4	6	6	8	6	0	-	0	1	1	0	MS

¹ See NE-184 Standard Potato Rating System for key to scores.² HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot³ Comment codes: AC=air cracks; BR=bruise; CPB=Colorado potato beetle; CS=common scab; DAE=deep apical eyes; DSA=deep stolen end; EB=early blight; ECB=European corn borer; EL= enlarged lenticels; FS=fusarium wilt; GC=growth cracks; HI= herbicide injury; HS=heat sprouts; IL=infected lenticels; LB=late blight; LHD=leaf hopper damage; MS=mishaped tubers; PE=pink eye; PR=pink rot; PLRV=potato leaf roll virus; PTS=very pointed tubers; PS=powdery scab; PVA, PVX, PVY=potato viruses A, X, Y; RZ=Rhizoctonia; SEB=stem end browning; SG=secondary growth; SIS=silver scurf; SKN=skins; SS=sun scald; SR=soft rot; STST=sticky stolens; VW=Verticillium wilt; WSTD=weak stand; WW=wire worm; YF=yellow flesh Note: ^ before code indicates high levels.

NORTH CAROLINA Table 2a. James Brothers Farms Variety Trial, Pasquotank Co. Planted 3-7-01. Harvested 6-28-01 (113 DAP).

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class (% of total yield)				Specific Gravity ¹	Chip Color ²	
		cwt/A	% Atl.	≥ 1 7/8"	< 1 7/8"	Culls	TRS		Wise	
AF1437-1	230	209	92	91	3	6	1.047	3	4	
AF1470-6	212	183	81	86	3	11	1.044	4	5	
AF1565-12	189	169	75	89	5	6	1.056	2	2	
AF1668-60	88	78	35	88	3	8	1.057	-	-	
Atlantic	246	226	100	92	4	4	1.068	3	3	
B0564-8	251	223	99	89	7	4	1.066	3	3	
B0564-9	276	237	108	87	3	10	1.060	3	3	
B1591-1	248	224	99	91	7	3	1.068	2	4	
B1752-5	209	185	82	89	8	3	1.057	-	-	
Bydand	232	201	89	87	7	6	1.052	3	-	
Cherry Red	172	149	67	86	6	7	1.060	-	-	
NorDonna	228	176	78	78	8	14	1.047	-	-	
NY120	188	167	74	88	2	10	1.057	3	3	
NY121	213	174	75	81	12	7	1.069	1.5	2	
Pike	195	165	73	85	9	5	1.062	2	2	
Platina	184	148	65	81	3	16	1.038	-	-	
Reba	195	178	79	91	5	4	1.055	3	4	
Snowden	248	229	101	92	4	4	1.062	2	2	
Superior	232	210	93	91	3	7	1.061	4	4	
Vivaldi	287	254	112	89	7	4	1.051	-	-	

¹ Determined by weight in air/water method.

² Chip Color Ratings conducted by Wise Foods Inc. and the NCSU potato breeding program at the TRS/VGJREC:

1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

NORTH CAROLINA Table 2b. James Brothers Farms Variety Trial, Pasquotank Co. Planted 3-7-01. Harvested 6-28-01 (113 DAP).

CLONE	Plant Data ¹				Tuber Data ¹									Internal Defects ² (no./40 tubers)						Comments ³
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC	SR	
AF1437-1	7	9	9	6	6	6	7	6	3	6	6	8	5	0	-	0	0	0	0	MS, GC, DAE, HS
AF1470-6	5	9	9	6	6	7	5	6	3	7	7	8	5	2	8	0	3	1	1	EL, GC, MS
AF1565-12	5	9	8	3	6	6	5	7	4	7	7	8	6	0	-	0	3	0	0	MS, RZ, SS, GC
AF1668-60	4	9	9	6	7	6	5	7	3	7	7	8	5	0	-	0	17	0	0	SS, RZ, SG
Atlantic	8	9	9	7	6	5	7	7	2	7	6	8	5	0	-	6	0	1	0	SS, RZ, MS, DAE
B0564-8	7	9	8	6	6	6	7	9	2	7	5	8	6	0	-	0	2	0	0	RZ, SS, MS
B0564-9	8	9	8	7	6	6	7	6	2	7	8	6	6	0	-	0	0	0	0	RZ, SS, MS
B1591-1	6	9	8	6	7	5	5	6	3	6	5	8	6	0	-	0	0	0	0	
B1752-5	9	9	9	6	6	8	7	7	2	6	5	8	7	0	-	0	0	0	0	DAE, PTS, YF2
Bydand	7	9	9	9	9	7	4	7	5	3	3	8	5	0	-	0	1	1	0	MS, RZ, SS, GC
Cherry Red	9	9	9	7	2	7	5	7	5	5	5	7	6	0	-	0	3	0	0	MS, RZ, GC
NorDonna	9	9	9	7	2	8	7	6	2	5	5	7	6	0	-	0	4	0	0	RZ, HS
NY120	7	9	9	7	6	6	4	6	4	6	7	7	4	0	-	0	7	0	0	RZ, MS
NY121	5	9	8	6	6	7	7	7	2	6	3	7	4	0	-	0	1	0	0	MS, DAE, HS, DSA
Pike	7	9	8	7	6	7	7	7	2	6	3	7	5	0	-	0	0	0	0	RZ, DAE, DSA
Platina	7	9	9	8	9	8	5	7	3	6	7	7	5	0	-	0	1	0	0	RZ, MS, SS, EL, YFI
Reba	8	9	9	7	6	7	5	5	3	6	7	7	5	0	-	0	0	0	0	MS, SS, DAE, RZ
Snowden	9	9	9	8	7	5	7	7	2	5	5	7	7	0	-	0	0	0	0	DAE, MS, RZ
Superior	6	9	9	6	6	6	5	7	4	5	7	7	5	0	-	1	0	0	0	GC
Vivaldi	9	9	9	8	9	8	7	7	5	8	5	8	9	0	-	0	2	0	0	MS, RZ, SS, YFI

¹ See NE-184 Standard Potato Rating System for key to scores.² HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot³ Comment codes: AC=air cracks; BR=bruise; CPB=Colorado potato beetle; CS=common scab; DAE=deep apical eyes; DSA=deep stolen end; EB=early blight; ECB=European corn borer; EL= enlarged lenticels; FS=fusarium wilt; GC=growth cracks; HI= herbicide injury; HS=heat sprouts; IL=infected lenticels; LB=late blight; LHD=leaf hopper damage; MS=mishaped tubers; PE=pink eye; PR=pink rot; PLRV=potato leaf roll virus; PTS=very pointed tubers; PS=powdery scab; PVA, PVX, PVY=potato viruses A, X, Y; RZ=Rhizoctonia; SEB=stem end browning; SG=secondary growth; SIS=silver scurf; SKN=skins; SS=sun scald; SR=soft rot; STST=sticky stolens; VW=Verticillium wilt; WSTD=weak stand; WW=wire worm; YF=yellow flesh Note: ^ before code indicates high levels.

NORTH CAROLINA Table 3a. McCotter Farms Variety Trial, Pamlico Co. Planted 3-8-01. Harvested 6-20-01 (104 DAP).

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class (% of total yield)				Specific Gravity ¹	Chip Color ²	
		cwt/A	% Atl.	≥ 1 7/8"	< 1 7/8"	Culls	TRS		Wise	
AF1437-1	218	186	71	85	2	13	1.049	3	4	
AF1470-6	247	215	81	87	4	9	1.050	4	4	
AF1565-12	210	184	70	87	4	8	1.062	2	-	
AF1856-1	241	218	83	90	2	8	1.067	2.5	-	
Atlantic	287	266	100	93	5	2	1.078	2.5	2	
B1497-22	286	254	96	89	7	4	1.063	-	-	
Cherry Red	230	206	78	90	6	5	1.070	-	-	
Eva	210	184	69	88	6	6	1.059	2	-	
MSE149-5Y	300	258	97	85	3	11	1.060	-	-	
MSF373-8	246	217	82	88	3	9	1.065	2	2	
NorDonna	254	213	80	84	11	5	1.059	-	-	
NY120	225	203	77	90	3	7	1.068	2.5	2	
Pike	233	208	79	89	7	4	1.068	2.5	2	
Reba	279	259	98	93	3	5	1.064	2.5	2	
Snowden	263	217	82	82	6	11	1.068	2	2	
Superior	283	257	97	90	4	6	1.069	3	3	
Grand Mean	251	222								
CV (%)	12	15								
LSD (K=100)	45	56								

¹ Determined by weight in air/water method.

² Chip Color Ratings conducted by Wise Foods Inc. and the NCSU potato breeding program at the TRS/VGJREC:

1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

NORTH CAROLINA Table 3b. McCotter Farms Variety Trial, Pamlico Co. Planted 3-8-01. Harvested 6-20-01 (104 DAP)

CLONE	Plant Data ¹				Tuber Data ¹					Internal Defects ² (no./40 tubers)							Comments ³			
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH		VR	BC	SR
AF1437-1	6	8	8	6	6	5	7	7	2	7	7	5	6	0	-	0	0	0	0	GC, SR
AF1470-6	5	8	7	4	6	7	5	6	2	7	7	7	6	1	8	0	0	1	0	^GC
AF1565-12	5	8	7	4	6	6	5	7	3	8	5	7	6	0	-	1	0	0	3	GC, SR
AF1856-1	6	8	8	6	6	6	5	6	3	6	8	5	4	3	8	5	0	3	2	MS, SR, GC, DSA
Atlantic	6	8	8	6	7	5	5	6	2	7	6	7	7	0	-	0	0	1	0	SR, GC, MS
B1497-22	7	7	8	7	6	6	7	6	4	8	6	6	5	0	-	0	1	0	0	RZ, SR, MS, YF2
Cherry Red	8	8	8	7	2	5	5	7	4	8	5	7	5	0	-	0	1	0	0	SR, GC, MS
Eva	6	8	7	5	6	6	7	6	3	6	5	8	5	0	-	0	0	0	5	SR, MS
MSE149-5Y	6	8	8	6	6	8	5	7	3	8	6	6	4	1	8	0	0	0	3	^MS, SR, RZ, YF1
MSF373-8	8	8	8	8	6	6	7	6	2	6	7	5	4	0	-	2	0	0	0	GC, SR, DAE
Nordonna	6	8	8	5	2	7	7	7	2	6	5	7	6	0	-	0	2	0	0	SG, SR
NY120	7	8	8	7	6	6	5	6	3	7	6	6	5	0	-	0	2	0	0	RZ, MS, SR
Pike	6	8	8	6	6	6	5	6	2	7	5	8	7	0	-	1	0	5	0	MS, SR
Reba	7	8	7	6	6	7	4	7	3	7	6	7	6	0	-	0	0	0	0	DAE, SR
Snowden	8	8	8	7	7	5	7	7	2	6	4	7	6	0	-	0	0	0	0	MS, RZ, DAE, DSA
Superior	6	8	8	5	6	6	5	7	3	6	6	6	6	0	-	0	0	0	0	MS, SR

¹ See NE-184 Standard Potato Rating System for key to scores.² HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot³ Comment codes: AC=air cracks; BR=bruise; CPB=Colorado potato beetle; CS=common scab; DAE=deep apical eyes; DSA=deep stolen end; EB=early blight; ECB=European corn borer; EL= enlarged lenticels; FS=fusarium wilt; GC=growth cracks; HI= herbicide injury; HS=heat sprouts; IL=infected lenticels; LB=late blight; LHD=leaf hopper damage; MS=mishaped tubers; PE=pink eye; PR=pink rot; PLRV=potato leaf roll virus; PTS=very pointed tubers; PS=powdery scab; PVA, PVX, PVY=potato viruses A, X, Y; RZ=Rhizoctonia; SEB=stem end browning; SG=secondary growth; SIS=silver scurf; SKN=skins; SS=sun scald; SR=soft rot; STST=sticky stolens; VW=Verticillium wilt; WSTD=weak stand; WW=wire worm; YF=yellow flesh Note: ^ before code indicates high levels.

NORTH CAROLINA Table 4a. Tull Hill Farms Variety Trial, Lenoir Co. Planted 2-27-01. Harvested 6-13-01 (106 DAP).

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class (% of total yield)			Specific Gravity ¹
		cwt/A	% Atl.	≥ 1 7/8"	< 1 7/8"		
					Culls		
B0984-1	222	181	90	81	7	13	1.063
B1523-4	282	235	116	84	9	8	1.054
B1758-3	374	288	142	77	7	16	1.058
B1758-4	335	249	123	74	9	17	1.057
Cherry Red	244	201	99	82	5	12	1.063
Dk Rd Norland	246	204	100	83	5	12	1.059
Michigan Purple	351	280	138	79	4	16	1.065
ND3196-1R	283	230	113	81	4	14	1.061
Dakota Rose (ND3574-5R)	294	236	116	81	6	14	1.054
NorDonna	244	202	100	83	10	7	1.057
Superior	293	255	126	88	3	9	1.066
Ware's Pride	309	230	112	75	5	20	1.056
Grand Mean	290	233					
CV (%)	11	15					
LSD (K=100)	44	57					

¹ Determined by weight in air/water method.

NORTH CAROLINA Table 4b. Tull Hill Farms Variety Trial, Lenoir Co. Planted 2-27-01. Harvested 6-13-01 (106 DAP).

CLONE	Plant Data ¹				Tuber Data ¹								Internal Defects ² (no./40 tubers)						Comments ³	
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BCSR		
B0984-1	9	7	9	8	2	7	5	5	3	5	6	8	6	2	8	0	1	0	0	MS
B1523-4	9	9	9	7	3	6	5	4	2	7	7	8	4	0	-	0	4	0	0	EL
B1758-3	9	9	9	8	2	8	7	6	2	6	7	8	6	3	8	1	0	3	0	MS
B1758-4	9	9	9	8	2	7	5	6	2	7	6	7	7	1	8	0	0	2	0	RZ, MS
Cherry Red	9	9	9	8	2	6	7	7	4	6	7	7	6	0	-	1	1	0	2	RZ, GC, MS, EL
Dk Rd Norland	4	7	7	3	2	7	5	7	4	6	6	8	6	0	-	0	15	0	0	MS, GC
Michigan Purple	5	8	8	4	1	8	5	6	3	4	7	8	4	1	8	0	3	0	0	AC, MS, GC, EL, SR
ND3196-1R	8	8	7	5	2	8	7	6	2	5	6	7	6	0	-	0	1	0	0	DAE, PTS, SR, MS
Dakota Rose (ND3574-5R)	4	8	8	3	2	7	5	6	3	3	6	8	4	0	-	0	16	0	0	PTS, MS, GC
NorDonna	7	8	8	4	2	7	7	7	2	6	4	8	6	0	-	0	19	0	0	MS, GC, HS
Superior	6	9	9	5	6	6	5	8	3	6	6	7	7	0	-	0	4	0	0	MS, RZ, PTS
Ware's Pride	5	8	9	4	3	7	7	6	2	4	6	8	3	0	-	0	7	0	0	^GC, ^MS

¹ See NE-184 Standard Potato Rating System for key to scores.² HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot³ Comment codes: AC=air cracks; BR=bruise; CPB=Colorado potato beetle; CS=common scab; DAE=deep apical eyes; DSA=deep stolen end; EB=early blight; ECB=European corn borer; EL= enlarged lenticels; FS=fusarium wilt; GC=growth cracks; HI= herbicide injury; HS=heat sprouts; IL=infected lenticels; LB=late blight; LHD=leaf hopper damage; MS=mishaped tubers; PE=pink eye; PR=pink rot; PLRV=potato leaf roll virus; PTS=very pointed tubers; PS=powdery scab; PVA, PVX, PVY=potato viruses A, X, Y; RZ=Rhizoctonia; SEB=stem end browning; SG=secondary growth; SIS=silver scurf; SKN=skins; SS=sun scald; SR=soft rot; STST=sticky stolens; VW=Verticillium wilt; WSTD=weak stand; WW=wire worm; YF=yellow flesh Note: ^ before code indicates high levels.

NORTH CAROLINA Table 5a. Round White Variety Trial 1, VGJREC/TRS Washington Co. Planted 3-12-01. Harvested 7-11-01 (121 DAP).

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class ¹ (% of total yield)							1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ²	Chip Color ³
		cwt/A	% Atl.	1's	2's	3's	4's	5's	Culls					
AF1424-7	243	224	85	3	21	70	2	0	5	92	71	1.074	2	
AF1437-1	244	218	82	3	24	59	6	0	9	89	65	1.048	4	
AF1470-6	208	124	47	4	16	43	0	0	37	59	43	1.048	4	
AF1565-12	209	185	70	4	35	53	0	0	8	88	53	1.061	2	
AF1569-2	331	304	115	4	17	63	12	0	4	92	75	1.064	3	
Atlantic	294	264	100	3	21	62	8	0	6	90	69	1.071	4	
B1591-1	275	253	96	3	31	60	1	0	5	92	61	1.082	3.5	
B1598-4	215	202	77	3	22	70	2	0	3	94	72	1.064	2.5	
B1624-22	163	141	54	10	39	47	0	0	4	86	47	1.061	3.5	
B1709-6	238	226	86	3	24	72	0	0	2	95	72	1.063	2.5	
B1806-8	304	277	105	4	36	54	1	0	5	91	55	1.067	2.5	
CAPC10	337	305	115	4	34	57	0	0	5	90	57	1.066	2	
CAPC15	323	288	109	2	15	70	4	0	9	89	74	1.065	2	
CAPC20	276	245	93	6	42	47	0	0	5	89	47	1.072	2	
CAPC25	229	208	79	7	34	56	1	0	2	91	57	1.068	2.5	
Cesar	261	230	88	6	56	32	0	0	5	88	32	1.060	2	
EVA	207	190	72	2	26	66	1	0	6	92	66	1.063	1.5	
Morning Gold	280	230	88	3	31	50	0	0	15	82	51	1.062	4	
MSE1952-8RUS	277	163	61	9	44	14	0	0	33	58	14	1.065	4	
MSG004-3	164	114	44	4	23	39	8	0	26	70	47	1.055	2.5	
MSH031-5	293	266	100	4	45	46	0	0	6	91	46	1.070	2	
MSH095-4	294	249	95	2	17	47	20	0	13	84	68	1.079	2	
NY124(S14-2)	239	212	80	5	35	54	0	0	6	89	54	1.069	2.5	
NY125(S28-2)	223	188	71	10	58	26	0	0	6	84	26	1.066	2.5	
SC8801-2	208	189	73	2	28	62	0	0	7	91	62	1.052	3	
Snowden	330	305	116	4	29	55	8	0	4	92	63	1.079	2.5	
Superior	197	179	68	5	34	55	2	0	5	91	56	1.064	4	
T28-1	199	179	69	4	25	63	3	0	5	91	65	1.057	2.5	
Grand Mean	252	220												
CV (%)	12	14												
LSD (K=100)	38	40												

¹ Size classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.

² Determined by weight in air/water method.

³ Chip Color Ratings conducted by Wise Foods Inc. and the NCSU potato breeding program at the TRS/VGJREC:

1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

CLONE	Plant Data ¹				Tuber Data ¹								Internal Defects ² (no./40 tubers)					Comments ³		
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR		BC	SR
AF1424-7	6	9	9	6	6	7	5	6	5	8	7	7	4	0	.	1	1	0	0	MS, CS
AF1437-1	8	8	8	6	6	5	7	7	3	7	7	7	5	1	8	0	0	1	0	^GC, RZ, MS
AF1470-6	5	9	9	5	6	6	5	7	2	7	5	6	3	0	.	0	8	1	0	^GC, ^RZ, SR, SS
AF1565-12	6	8	8	4	8	7	5	7	5	8	5	7	5	0	.	4	0	0	0	^MS, GC, RZ, HS
AF1569-2	7	9	8	6	7	6	5	6	3	8	7	6	5	1	8	0	1	0	1	RZ, CS, GC, SS, MS
Atlantic	7	9	8	7	5	5	7	6	2	6	7	8	6	10	8	11	0	6	0	^MS, ^SS, RZ
BI591-1	6	8	8	5	5	5	5	6	3	7	6	7	7	2	8	0	0	0	0	RZ, GC, SS
BI598-4	7	8	9	6	6	5	6	7	2	5	6	8	6	0	.	0	0	1	0	MS, SS
BI624-22	5	8	8	5	6	5	3	7	2	7	5	8	6	0	.	0	1	1	1	CS, MS, SS
BI709-6	6	9	8	7	6	6	7	7	3	8	5	8	6	0	.	4	0	5	0	MS
BI806-8	7	9	9	6	6	6	5	5	4	8	6	6	5	0	.	0	0	0	0	^RZ, SS, MS, YF
CAPC10	9	9	9	7	6	6	5	6	5	8	6	7	6	0	.	0	0	3	0	RZ, MS
CAPC15	7	9	9	7	8	7	7	7	5	6	8	7	4	0	.	0	0	0	1	MS, RZ, GC
CAPC20	9	8	9	7	6	7	5	7	2	6	5	7	5	0	.	0	0	0	0	MS, SG, SS
CAPC25	6	8	8	5	6	6	7	7	2	7	5	8	7	0	.	0	0	0	0	SS, MS, GC, YF
Cesar	9	9	9	8	6	7	4	7	5	8	5	8	6	2	8	0	0	3	1	CS, SR, MS, SG
EVA	8	9	8	6	8	7	7	7	2	8	6	6	6	0	.	0	0	2	0	MS, SR, RZ, SS
Morning Gold	9	9	9	8	6	7	5	7	4	7	6	4	4	1	8	0	1	0	1	^GC, CS, RZ, SR, MS, YF, ^EL
MSE1952-8RUS	6	8	8	6	4	2	7	6	8	7	6	5	4	0	.	0	0	0	0	GC, ^MS, ^RZ
MSG004-3	5	8	8	4	6	6	5	5	3	8	7	6	6	0	.	0	1	1	0	^CS, SG, RZ, GC
MSH031-5	9	9	9	6	8	8	5	8	4	8	6	7	5	0	.	0	1	1	0	RZ, SR, SS, HS
MSH095-4	8	9	8	7	6	6	5	6	4	6	8	6	4	0	.	0	0	0	0	^CS, MS
NY124(S14-2)	7	8	8	6	6	6	7	8	2	5	5	8	5	0	.	0	0	0	0	RZ, GC
NY125(S28-2)	8	9	8	7	6	6	3	8	3	8	3	7	6	0	.	0	0	0	1	MS, RZ, SS
SC8801-2	9	8	8	6	8	7	5	6	5	7	6	8	5	1	8	2	1	4	0	MS, RZ
Snowden	9	9	8	7	6	5	6	6	3	5	7	8	6	1	8	0	0	1	0	MS, SS
Superior	7	8	9	5	6	6	5	7	4	5	6	8	6	0	.	0	0	0	3	GC, RZ, MS, SS, CS
T28-1	6	7	7	5	6	8	7	7	2	7	6	6	7	0	.	0	0	0	0	GC, RZ

¹ See NE-184 Standard Potato Rating System for key to scores.

² HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot

³ Comment codes: AC=air cracks; BR=bruise; CPB=Colorado potato beetle; CS=common scab; DAE=deep apical eyes; DSA=deep stolen end; EB=early blight; ECB=European corn borer; EL= enlarged lenticels; FS=fusarium wilt; GC=growth cracks; HI= herbicide injury; HS=heat sprouts; IL=infected lenticels; LB=late blight; LHD=leaf hopper damage; MS=mishaped tubers; PE=pink eye; PR=pink rot; PLRV=potato leaf roll virus; PTS=very pointed tubers; PS=powdery scab; PVA, PVX, PVY=potato viruses A, X, Y; RZ=Rhizoctonia; SEB=stem end browning; SG=secondary growth; SIS=silver scurf; SKN=skins; SS=sun scald; SR=soft rot; STST=sticky stolens; VW=Verticillium wilt; WSTD=weak stand; WW=wire worm; YF=yellow flesh Note: ^ before code indicates high levels.

NORTH CAROLINA Table 6a. Round White Variety Trial 2, VGJREC/TRS Washington Co. Planted 3-13-01. Harvested 7-12-01 (121 DAP).

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class ¹							1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ²	Chip Color ³
		cwt/A	% Atl.	(% of total yield)										
				1's	2's	3's	4's	5's	Culls					
AF1763-2	208	192	80	3	35	56	1	0	5	92	57	1.048	4	
AF1856-1	226	191	80	2	16	55	13	0	13	85	69	1.064	2.5	
AF1938-3	225	193	81	2	19	60	7	0	12	86	67	1.062	3	
Atlantic	270	240	100	5	28	56	4	0	6	89	61	1.071	2.5	
B0178-34	272	245	102	4	26	64	0	0	6	90	64	1.075	1.5	
B0766-3	133	112	47	8	47	38	0	0	8	84	38	1.060	3	
B1339-2	201	169	70	12	48	35	1	0	4	84	36	1.072	3	
B1870-1	222	207	87	4	24	67	2	0	3	93	69	1.055	3.5	
B1884-9	268	239	100	2	16	57	16	0	9	90	74	1.066	2.5	
NY112	256	243	102	2	32	60	3	0	3	95	63	1.071	2.5	
NY121	231	182	76	20	61	17	0	0	2	78	17	1.069	3.5	
Pike	237	211	88	7	39	50	0	0	3	89	51	1.072	3.5	
Snowden	303	286	120	4	27	66	2	0	2	94	68	1.076	3	
Superior	211	189	80	4	33	56	1	0	7	89	57	1.062	3.5	
T2-2	266	251	105	3	21	54	19	0	3	95	73	1.064	2	

¹ Size classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.

² Determined by weight in air/water method.

³ Chip Color Ratings conducted by Wise Foods Inc. and the NCSU potato breeding program at the TRS/VGJREC:

1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

NORTH CAROLINA Table 6b. Round White Variety Trial 2, VGJREC/TRS Washington Co. Planted 3-13-01. Harvested 7-12-01 (121 DAP).

CLONE	Plant Data ¹				Tuber Data ¹							Internal Defects ² (no./40 tubers)						Comments ³		
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR		BC	SR
AF1763-2	6	8	8	5	8	6	5	7	4	7	5	8	6	0	.	0	0	0	0	MS, SR, SG
AF1856-1	7	8	8	6	6	6	7	7	5	6	8	7	4	2	8	4	1	19	0	SS, MS, SR, GC, DAE, DSA
AF1938-3	6	8	9	5	6	6	5	4	5	7	7	6	4	0	.	0	0	5	0	ELs, ^GC, RZ, MS, SR
Atlantic	9	8	8	7	7	5	7	6	2	6	7	7	6	3	8	7	0	3	0	RZ, MS, SS, DAE
B0178-34	8	9	8	7	6	6	3	5	3	7	6	7	4	3	8	1	0	9	0	MS, SS
B0766-3	8	8	9	7	8	7	7	7	2	8	5	6	5	0	.	0	0	1	0	^RZ, SR, MS
B1339-2	7	8	8	6	6	7	5	7	2	8	3	7	5	0	.	2	0	0	0	CS, GC, RZ
B1870-1	5	8	8	6	6	7	5	7	2	8	6	8	8	0	.	0	1	0	0	RZ, GC, SS
B1884-9	7	8	8	6	6	6	6	6	5	7	8	8	5	6	8	1	0	12	0	MS, GC
NY112	6	8	9	7	7	5	6	5	5	8	6	8	8	5	7	1	0	0	2	SS, MS
NY121	6	8	8	7	6	7	6	8	2	7	2	8	3	0	.	0	0	1	0	^DSA, ^DAE, SR, SS
Pike	8	8	8	8	8	7	5	6	2	7	3	7	5	3	8	0	0	1	1	RZ, MS, GC
Snowden	9	8	8	6	6	5	7	6	2	5	5	8	6	1	8	0	0	2	0	MS
Superior	7	8	8	5	6	6	5	8	3	5	6	8	6	0	.	0	0	0	0	RZ, SS, MS
T2-2	7	8	9	7	7	5	5	6	5	7	8	8	7	0	.	0	0	0	1	^RZ, MS, SS

¹ See NE-184 Standard Potato Rating System for key to scores.² HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot³ Comment codes: AC=air cracks; BR=bruise; CPB=Colorado potato beetle; CS=common scab; DAE=deep apical eyes; DSA=deep stolen end; EB=early blight; ECB=European corn borer; EL= enlarged lenticels; FS=fusarium wilt; GC=growth cracks; HI= herbicide injury; HS=heat sprouts; IL=infected lenticels; LB=late blight; LHD=leaf hopper damage; MS=mishaped tubers; PE=pink eye; PR=pink rot; PLRV=potato leaf roll virus; PTS=very pointed tubers; PS=powdery scab; PVA, PVX, PVY=potato viruses A, X, Y; RZ=Rhizoctonia; SEB=stem end browning; SG=secondary growth; SIS=silver scurf; SKN=skins; SS=sun scald; SR=soft rot; STST=sticky stolens; VW=Verticillium wilt; WSTD=weak stand; WW=wire worm; YF=yellow flesh Note: ^ before code indicates high levels.

NORTH CAROLINA Table 7a. Unreplicated Variety Trial, VGJREC/TRS Washington Co. Planted 3-12-01. Harvested 7-6-01 (116 DAP).

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class ¹								1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ²
		cwt/A	% Atl.	(% of total yield)										
				1's	2's	3's	4's	5's	Culls					
AF2206-2	208	155	70	7	48	26	0	0	18	74	26	1.065		
AF2206-7	185	142	65	3	25	49	2	0	20	77	52	1.079		
AF2207-4	227	185	84	5	35	46	0	0	13	81	46	1.072		
AF2210-3	319	220	100	3	34	36	0	0	28	69	36	1.068		
AF2211-14	192	123	56	18	47	17	0	0	18	64	17	1.057		
AF2211-4	272	199	90	3	31	42	0	0	23	73	42	1.047		
AF2211-6	168	146	66	5	37	50	0	0	8	87	50	1.071		
AF2211-9	226	141	64	2	19	41	2	0	35	62	43	1.068		
AF2213-4	193	124	56	9	31	34	0	0	27	64	34	1.066		
AF2214-1	306	234	106	4	21	47	8	0	19	76	56	1.066		
AF2215-1	230	110	50	0	16	32	0	0	52	48	32	1.078		
AF2215-3	250	244	111	2	23	74	0	0	1	97	74	1.068		
AF2215-4	187	116	53	3	20	42	0	0	35	62	42	1.073		
AF2215-5	175	58	26	3	12	19	1	0	63	33	21	1.075		
AF2217-3	173	133	60	1	30	44	3	0	22	77	47	1.081		
AF2219-1	143	85	39	2	23	33	3	0	38	60	36	1.067		
AF2220-1	196	143	65	1	40	33	0	0	26	73	33	1.072		
AF2220-2	130	121	55	2	34	60	0	0	5	93	60	1.068		
AF2220-3	196	172	78	8	43	45	0	0	4	88	45	1.069		
AF2220-7	220	193	88	3	33	54	0	0	10	88	54	1.074		
AF2222-2	214	176	92	14	67	15	0	0	4	82	15	1.062		
AF2222-3	212	175	92	13	43	40	0	0	4	83	40	1.074		

¹ Size classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.

² Determined by weight in air/water method.

NORTH CAROLINA Table 7a. Continued.

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class ¹ (% of total yield)							1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ²
		cwt/A	% Atl.	1's	2's	3's	4's	5's	Culls				
AF2222-4	241	176	92	12	54	19	0	0	15	73	19	1.057	
AF2222-5	232	153	80	6	18	48	0	0	28	66	48	1.053	
AF2242-10	205	155	82	10	47	29	0	0	15	76	29	1.068	
AF2256-1	229	178	94	11	52	26	0	0	11	78	26	1.066	
AF2268-2	230	196	103	4	44	42	0	0	10	85	42	1.060	
AF2268-6	178	136	71	14	53	23	0	0	10	76	23	1.059	
AF2269-8	322	248	130	5	59	18	0	0	19	77	18	1.050	
AF2271-6	278	172	90	3	16	45	0	0	36	62	45	1.064	
ARSW97-1200-1	277	130	68	17	34	12	0	0	36	47	12	1.057	
ARSW97-4287-2	324	216	113	5	29	37	0	0	28	67	37	1.073	
Atlantic	262	214	100	5	25	53	4	0	13	82	57	1.068	
B1801-6	261	152	80	5	21	38	0	0	37	58	38	1.056	
B1870-3	289	225	118	6	23	55	0	0	16	78	55	1.057	
B1880-6	325	267	140	6	26	52	4	0	12	82	56	1.066	
B1927-14	238	112	59	9	35	12	0	0	44	47	12	1.063	
B1952-2	216	181	95	4	29	55	0	0	12	84	55	1.069	
B1952-4	202	145	76	25	59	12	0	0	4	72	12	1.077	
B1957-1	126	99	52	11	77	2	0	0	11	79	2	1.062	
B1958-85	229	177	93	9	55	22	0	0	13	77	22	1.058	
B1960-18	200	157	68	4	31	47	0	0	18	78	47	1.062	
B1970-11	222	165	71	16	56	19	0	0	10	74	19	1.065	
B1970-14	218	137	59	21	50	13	0	0	17	63	13	1.067	
B1970-5	178	136	58	3	30	43	4	0	20	76	47	1.062	
B1970-9	202	152	65	11	67	8	0	0	14	75	8	1.061	

¹ Size classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.² Determined by weight in air/water method.

NORTH CAROLINA Table 7a. Continued.

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class ¹							1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ²
		cwt/A	% Atl.	(% of total yield)									
				1's	2's	3's	4's	5's	Culls				
B1971-11	296	237	102	7	26	55	0	0	13	80	55	1.061	
B1973-3	260	203	87	18	62	16	0	0	4	78	16	1.063	
B1991-126	222	178	77	7	29	51	0	0	13	80	51	1.048	
B1992-177	201	156	67	7	30	47	0	0	16	78	47	1.055	
B2000-185	290	227	98	3	17	59	3	0	19	78	62	1.068	
B2001-186	311	242	105	11	45	33	0	0	11	78	33	1.063	
B2001-197	232	198	85	1	27	54	4	0	14	85	58	1.056	
B2003-133	260	216	93	11	47	36	0	0	6	83	36	1.067	
B2003-140	216	154	66	12	46	25	0	0	17	71	25	1.073	
B2008-177	160	123	53	21	75	2	0	0	2	77	2	1.076	
B2018-7	212	155	67	18	66	7	0	0	9	73	7	1.064	
B2021-12	189	84	36	52	44	0	0	0	4	44	0	1.062	
B2021-3	200	93	40	39	44	3	0	0	15	46	3	1.066	
B2024-10	298	261	113	4	32	53	3	0	8	88	56	1.070	
B2024-26	283	251	108	4	47	42	0	0	7	89	42	1.072	
B2024-33	258	229	106	7	47	42	0	0	4	89	42	1.063	
B2024-9	329	257	119	13	59	19	0	0	9	78	19	1.057	
B2029-1	44	14	7	3	23	11	0	0	64	33	11	N/A	
B2049-2	172	116	54	9	65	2	0	0	24	68	2	1.063	
B2054-6	351	309	143	1	20	64	4	0	11	88	68	1.060	
B2055-7	284	215	100	1	18	46	12	0	23	76	58	1.062	
Snowden	305	268	136	5	31	54	3	0	7	88	57	1.072	
Superior	276	204	124	3	27	48	1	0	21	75	48	1.071	
T11-2	277	245	114	6	28	57	3	0	6	89	60	1.055	

¹ Size classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.² Determined by weight in air/water method.

NORTH CAROLINA Table 7a. Continued.

CLONE	Total Yield cwt/A	Marketable Yield		Size Distribution by Class ¹ (% of total yield)							1 7/8 to 4"	2 1/2 to 4"	Specific Gravity ²
		cwt/A	% Atl.	1's	2's	3's	4's	5's	Culls				
T15-1	274	210	97	13	47	28	2	0	10	77	29	1.005	
T15-3	253	218	101	8	55	31	0	0	5	86	31	1.054	
T17-2	261	189	88	10	61	12	0	0	17	72	12	1.058	
T20-15	300	257	119	9	37	49	0	0	5	86	49	1.063	
T27-21	308	221	103	5	27	45	0	0	23	72	45	1.060	
T35-34	222	177	82	14	55	25	0	0	7	80	25	1.071	
T37-3	223	166	77	15	61	13	0	0	11	74	13	1.064	
T3-9	232	183	85	18	52	27	0	0	3	79	27	1.059	
T88-19	244	181	84	7	38	36	0	0	19	74	36	1.064	
U106-26	163	148	69	5	39	52	0	0	4	91	52	1.062	
U109-6	159	88	41	7	35	21	0	0	37	56	21	1.061	
U47-2	159	132	61	9	46	37	0	0	8	83	37	1.071	
U47-21	223	174	81	16	47	31	0	0	6	78	31	1.072	
Grand Mean	232	174											

¹ Size classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.

² Determined by weight in air/water method.

NORTH CAROLINA Table 7b. Unreplicated Variety Trial, VGJREC/TRS Washington Co. Planted 3-12-01. Harvested 7-6-01 (116 DAP).

CLONE	Plant Data ¹				Tuber Data ¹					Internal Defects ² (no./40 tubers)							Comments ³			
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH		VR	BC	SR
AF2206-2	8	7	8	7	8	6	5	4	3	8	6	8	4	0	.	0	0	0	0	^ MS, CS, RZ
AF2206-7	8	8	8	5	8	6	5	5	2	7	7	8	4	0	.	0	0	0	0	^ CS, DAE
AF2207-4	6	8	8	6	6	6	5	5	4	7	5	8	4	0	.	0	0	0	0	MS, RZ, CS
AF2210-3	6	8	8	5	8	6	5	6	3	8	7	6	4	0	.	1	0	0	0	^ CS, MS, RZ
AF2211-14	6	8	8	5	6	6	5	4	3	8	3	7	5	1	7	4	0	1	2	SR, CS, MS
AF2211-4	8	9	8	8	6	5	4	4	3	8	7	5	4	0	.	10	1	0	0	CS, MS, SS
AF2211-6	5	8	8	5	6	6	5	5	2	6	6	8	6	9	6	0	0	0	0	MS, CS
AF2211-9	8	9	9	6	6	6	5	4	2	7	8	6	4	4	3	7	1	2	0	^ CS, GC, MS
AF2213-4	5	8	8	5	8	6	6	5	3	7	5	7	5	2	8	2	0	1	1	^ CS, SR
AF2214-1	6	9	8	8	6	5	5	4	2	8	8	8	5	0	.	0	0	0	0	GC, CS, MS
AF2215-1	8	9	8	7	6	6	7	5	2	8	5	5	3	0	.	0	0	1	0	^ CS, ^ MS
AF2215-3	5	8	9	5	6	7	4	6	3	6	6	8	6	3	8	0	0	0	0	RZ, CS
AF2215-4	5	9	8	6	6	6	5	4	3	6	7	7	4	1	5	2	0	0	0	^ CS, SSC, SR
AF2215-5	8	8	8	6	6	7	5	5	2	7	6	8	3	0	.	0	0	0	0	^ CS
AF2217-3	8	7	8	5	6	6	6	5	3	7	6	8	4	0	.	2	0	0	1	MS, DSA
AF2219-1	5	8	8	4	6	8	5	7	3	7	7	7	4	0	.	0	0	0	0	M CS, SR
AF2220-1	5	8	8	3	6	6	7	5	2	8	6	8	4	0	.	0	0	2	0	CS, MS
AF2220-2	5	8	8	4	6	6	7	5	2	8	6	8	5	0	.	0	0	0	0	SR, SS
AF2220-3	5	8	8	4	8	5	5	6	5	8	6	8	5	3	8	0	0	0	0	SR, RZ
AF2220-7	6	9	9	5	8	6	5	6	2	7	5	8	4	0	.	0	0	0	0	MS, CS
AF2222-2	6	8	8	6	6	7	4	5	2	7	3	7	5	0	.	0	0	0	0	RZ. MS
AF2222-3	9	8	8	8	6	6	5	3	3	6	7	7	5	0	.	0	0	0	0	MS, STST

NORTH CAROLINA Table 7b. Continued.

CLONE	Plant Data ¹				Tuber Data ¹					Internal Defects ² (no./40 tubers)							Comments ³				
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH		VR	BC	SR	
AF2222-4	5	9	7	5	6	7	5	7	3	8	5	8	5	5	0	.	0	0	0	0	^CS, SR
AF2222-5	6	8	9	6	6	6	5	7	2	8	7	7	3	3	0	.	0	0	0	0	GC, ^CS, SR, RZ
AF2242-10	6	8	8	6	6	7	7	6	3	7	5	7	5	5	0	.	0	0	0	0	MS, CS
AF2256-1	8	8	8	9	6	6	5	4	4	8	6	8	5	5	0	.	1	0	0	0	MS, GC
AF2268-2	8	8	7	5	8	7	6	5	3	7	6	7	4	4	0	.	0	0	0	0	CS, SS
AF2268-6	7	8	8	5	6	6	5	4	2	7	5	8	5	5	0	.	0	0	2	0	MS
AF2269-8	9	8	8	8	8	7	5	5	4	7	6	7	4	4	0	.	0	0	0	0	GC, SS, MS
AF2271-6	6	9	8	7	8	6	5	4	5	8	7	7	3	3	6	7	0	0	3	0	^MS, RZ, SS
ARSW97-1200-1	9	9	9	8	6	6	6	5	3	8	3	7	5	5	0	.	0	0	0	0	GC, RZ, CS
ARSW97-4287-2	9	9	9	8	6	5	6	6	4	8	7	6	5	5	1	8	0	0	0	0	^CS
Atlantic	8	9	8	6	6	5	5	5	3	7	7	8	5	5	3	7	4	0	2	0	RZ, CS, MS, SR
B1801-6	6	9	9	6	6	7	5	5	2	7	7	6	6	6	0	.	0	0	0	0	^CS, YF
B1870-3	6	9	9	6	6	6	5	5	3	7	6	8	6	6	0	.	0	0	0	0	SS, SG, CS, RZ
B1880-6	6	7	8	5	6	6	5	6	2	7	7	8	6	6	0	.	0	0	0	0	MS, RZ
B1927-14	6	9	8	5	8	7	5	7	2	7	5	7	4	4	0	.	0	0	0	0	^CS, RZ, SR
B1952-2	8	8	9	7	1	7	5	7	3	7	6	8	7	7	1	8	0	0	0	0	SR, CS, SIS
B1952-4	8	8	9	7	2	7	5	6	2	6	2	8	4	4	0	.	0	0	0	0	SR, SIS, YF
B1957-1	9	9	9	7	5	4	5	4	5	8	5	8	4	4	2	8	0	0	0	0	CS, MRZ
B1958-85	8	8	8	7	8	5	5	6	5	8	6	8	4	4	2	8	0	0	0	0	^MS, SR
B1960-18	9	8	8	7	6	6	5	6	4	6	6	8	5	5	0	.	0	0	1	0	GC, MS
B1970-11	5	7	8	5	8	7	5	5	5	7	6	8	5	5	0	.	1	0	0	0	ELS, MS, RZ
B1970-14	9	8	8	7	6	8	7	6	3	8	5	8	5	5	0	.	0	0	0	0	EL, GC, MS
B1970-5	6	6	8	8	8	6	6	7	2	8	5	8	5	5	4	5	0	0	3	0	^RZ
B1970-9	6	9	9	7	8	6	5	5	4	8	5	8	4	4	0	.	4	0	0	0	SR, MS

NORTH CAROLINA Table 7b. Continued.

CLONE	Plant Data ¹				Tuber Data ¹				Internal Defects ² (no./40 tubers)				Comments ³							
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS		APP	HN	HNR	HH	VR	BC	SR
B1971-11	9	7	8	7	6	5	5	4	5	7	7	8	5	0	.	4	0	0	0	GC, MS
B1973-3	9	9	9	8	6	7	5	6	4	8	5	8	7	7	7	0	0	1	0	MS, SS, RZ, CS
B1991-126	8	9	8	8	8	7	4	3	5	8	8	8	5	1	8	0	0	0	0	MS, CS
B1992-177	5	9	8	6	6	5	5	5	2	8	5	7	6	0	.	0	0	0	0	CS, RZ
B2000-185	9	9	9	9	6	6	5	5	3	8	8	7	6	0	.	0	0	4	0	CS, SS, MS
B2001-186	6	9	9	7	8	7	7	5	4	7	5	7	6	0	.	5	0	0	0	MS, CS, SS
B2001-197	8	8	9	7	6	7	6	4	3	8	7	8	5	0	.	0	0	0	0	MS, RZ
B2003-133	6	8	9	7	6	7	7	5	4	8	7	8	4	0	.	0	0	0	0	PTS, MS
B2003-140	6	8	8	5	6	7	7	6	4	8	5	7	6	0	.	3	0	4	0	GC, MS, ^SR
B2008-177	6	7	7	4	8	7	7	7	3	7	3	7	5	0	.	0	0	0	0	SR, RZ
B2018-7	8	8	9	6	6	7	6	5	4	8	5	7	6	1	8	0	0	0	0	SR, CS, RZ
B2021-12	9	8	8	9	2	8	7	7	3	6	2	8	5	0	.	0	0	0	0	SR, SIS, YF
B2021-3	9	9	9	8	2	8	5	6	3	5	2	8	4	0	.	0	0	0	0	^MS, GC, SR, PTS, YF
B2024-10	9	9	9	8	6	5	5	4	4	7	7	8	6	1	7	0	0	0	0	SR, MS, YF
B2024-26	9	9	8	8	7	5	5	5	3	8	5	8	6	0	.	0	0	0	0	MS
B2024-33	6	8	8	5	7	6	4	5	2	8	5	8	7	0	.	0	0	0	0	MS, YF
B2024-9	9	8	9	6	6	6	5	6	5	8	5	8	6	0	.	0	0	0	1	SR, RZ
B2029-1	5	7	9	6	6	8	7	7	3	7	5	3	3	0	.	0	0	0	3	^SR, YF
B2049-2	5	7	8	5	4	2	5	6	5	7	3	8	6	0	.	0	0	2	0	RZ, GC
B2054-6	9	8	9	6	2	7	7	4	6	8	9	8	5	3	7	0	0	0	0	MS, HS
B2055-7	6	9	9	6	6	7	5	4	5	8	9	7	3	0	.	0	0	0	2	RZ, GC, SR, MS
Snowden	9	9	8	7	7	5	5	4	2	6	5	7	5	1	8	0	0	1	0	DAE, DSA, ^MS
Superior	8	9	8	5	6	6	5	5	3	7	7	7	5	1	8	2	1	2	0	EL, MS, RZ, SR, CS, SS
T11-2	8	9	8	8	2	7	7	5	2	8	6	8	7	0	.	0	0	0	0	RZ

NORTH CAROLINA Table 7b. Continued.

CLONE	Plant Data ¹				Tuber Data ¹				Internal Defects ² (no./40 tubers)										Comments ³	
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZE	DIS	APP	HN	HNR	HH	VR	BC		SR
T15-1	5	7	8	6	2	6	5	5	4	7	5	7	6	0	.	0	0	0	0	SS, RZ
T15-3	6	9	8	4	2	7	7	6	3	7	5	8	7	0	.	0	0	0	0	CS
T17-2	6	9	8	5	2	7	7	5	5	8	5	6	5	0	.	0	0	0	0	MS, RZ, STST
T20-15	9	9	8	8	6	6	6	7	2	7	5	8	4	2	8	0	0	2	0	DSA, DAE, SR, RZ
T27-21	9	9	9	8	8	7	7	4	2	6	7	7	4	0	.	0	0	0	0	RZ, GC, SS, DSA
T35-34	6	9	8	7	6	5	5	5	2	6	5	8	6	0	.	0	0	0	0	M CS
T37-3	6	9	8	5	8	8	5	7	2	8	5	7	5	0	.	0	0	0	0	CS, SR, MS
T3-9	6	9	8	6	8	8	6	5	3	6	3	7	6	0	.	0	0	0	0	MS, SS
T88-19	6	8	8	5	8	7	5	6	2	6	6	7	4	0	.	0	0	0	0	CS, MS
U106-26	8	7	8	6	8	7	5	7	3	7	6	8	6	0	.	0	0	0	0	SS, SR
U109-6	7	8	8	4	6	7	7	7	2	7	5	7	4	1	8	0	0	0	0	^RZ
U47-2	8	8	8	5	8	6	5	4	3	8	6	8	5	0	.	0	0	0	0	MS, SS, RZ
U47-21	6	8	8	8	8	6	7	6	2	6	5	8	7	0	.	0	0	0	0	MS, SR

¹ See NE-184 Standard Potato Rating System for key to scores.² HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot³ Comment codes: AC=air cracks; BR=bruise; CPB=Colorado potato beetle; CS=common scab; DAE=deep apical eyes; DSA=deep stolen end; EB=early blight; ECB=European corn borer; EL=enlarged lenticels; FS=fusarium wilt; GC=growth cracks; HI=herbicide injury; HS=heat sprouts; IL=infected lenticels; LB=late blight; LHD=leaf hopper damage; MS=mishaped tubers; PE=pink eye; PR=pink rot; PLRV=potato leaf roll virus; PTS=very pointed tubers; PS=powdery scab; PVA, PVX, PVY=potato viruses A, X, Y; RZ=Rhizoctonia; SEB=stem end browning; SG=secondary growth; SIS=silver scurf; SKN=skins; SS=sun scald; SR=soft rot; STST=sticky stolens; VW=Verticillium wilt; WSTD=weak stand; WW=wire worm; YF=yellow flesh Note: ^ before code indicates high levels.

NORTH CAROLINA Table 8a. Early Generation Yield Trial, VGJREC/TRS Washington Co. Planted 3-13-01. Harvested 7-5-01 (114 DAP).

CLONE	Total Yield cwt/A	Size Distribution by Class ¹ (% of total yield)										Specific Gravity ²	Chip Color ³
		Marketable Yield											
		cwt/A	% Atl.	1's	2's	3's	4's	5's	Culls	1 7/8 to 4"	2 1/2 to 4"		
Atlantic	261	247	100	5	36	57	1	0	0	94	58	1.083	2
B1990-17	317	291	119	7	34	56	2	0	1	92	58	1.060	1.5
B1990-3	299	268	111	6	33	53	4	0	4	90	57	1.077	3.5
B1990-4	360	333	137	4	23	64	5	0	3	93	69	1.078	3
B1992-106	183	166	69	9	48	42	1	0	1	91	43	1.071	2
B1992-125	272	222	91	18	53	28	0	0	1	82	28	1.077	2
B1992-160	281	246	101	4	27	59	2	0	8	88	61	1.081	3
B1992-166	266	241	99	6	29	54	8	0	3	91	62	1.074	3.5
B1992-66	220	203	83	4	20	71	1	0	4	92	72	1.062	2
B1992-72	178	130	54	26	60	13	0	0	1	73	13	1.068	3
B1999-175	218	176	72	9	52	29	0	0	11	81	29	1.071	3.5
B2000-81	339	312	127	3	30	62	0	0	4	92	62	1.077	3.5
B2001-146	291	273	111	4	26	67	1	0	2	94	68	1.067	1.5
B2001-184	223	181	74	7	43	37	1	0	12	81	38	1.067	2
B2001-29	297	283	116	2	17	71	8	0	3	95	79	1.067	1.5
B2001-6	129	106	44	8	65	18	0	0	10	82	18	1.062	2
B2008-34	159	134	54	12	55	30	0	0	4	84	30	1.074	1.5
B2016-31	237	227	93	3	20	71	6	0	2	96	76	1.068	1.5
Grand Mean	252	224											
CV (%)	12	12											
LSD (K=100)	40	38											

¹ Size classes: 1's < 1 7/8"; 2's > 1 7/8 to 2 1/2"; 3's > 2 1/2 to 3 1/4"; 4's > 3 1/4 to 4"; 5's > 4"; Culls = all defective potatoes.

² Determined by weight in air/water method.

³ Chip Color Ratings conducted by Wise Foods Inc. and the NCSU potato breeding program at the TRS/VGJREC:

1 = no defects, exceptionally bright; 2 = excellent, bright; 3 = good, light or golden; 4 = dark defects, marginal; 5 = not acceptable.

NORTH CAROLINA Table 8b. Early Generation Yield Trial, VGJREC/TRS Washington Co. Planted 3-13-01. Harvested 7-5-01 (114 DAP).

CLONE	Plant Data ¹				Tuber Data ¹										Internal Defects ² (no./40 tubers)					Comments ³
	TYPE	DIS	POLL	MAT	CLR	TXT	TCX	TSS	SHP	EYE	SIZED	IS	APP	HN	HNR	HH	VR	BC	SR	
Atlantic	8	8	8	6	6	5	5	5	2	6	7	7	6	1	8	4	0	0	1	SR, DAE, DSA
B1990-17	6	8	8	5	8	6	5	7	2	8	7	7	8	0	-	0	0	0	0	SR, GC
B1990-3	9	9	9	8	6	6	5	4	3	7	7	8	5	0	-	0	0	0	0	GC, MS, SS, SR
B1990-4	9	9	9	8	6	6	7	4	4	7	8	8	5	0	-	0	0	0	1	SS, RZ, STST, MS
B1992-106	8	8	8	8	5	5	5	6	3	8	6	8	6	0	-	0	0	0	0	MS, RZ
B1992-125	8	8	8	6	6	6	5	7	2	8	3	7	6	0	-	18	0	0	0	RZ, SS
B1992-160	9	8	8	7	5	6	7	6	4	8	9	8	6	0	-	22	0	0	1	MS, GC, STST, SR
B1992-166	9	9	9	8	6	6	7	5	3	8	7	7	6	0	-	0	0	0	0	RZ, MS, SG
B1992-66	6	8	8	5	5	5	5	7	4	7	6	8	7	0	-	31	0	0	0	SS
B1992-72	7	8	8	6	6	6	7	7	2	7	3	8	5	0	-	2	0	2	0	RZ, GC, SS
B1999-175	6	8	9	5	6	8	5	7	5	8	5	6	4	0	-	0	0	0	0	PTS, ^RZ, MS, SR, SS
B2000-81	9	9	8	7	6	6	5	7	5	8	7	7	6	0	-	0	0	0	0	SS, RZ, EL
B2001-146	9	8	9	6	6	6	5	6	5	7	7	7	5	6	8	0	0	1	0	SS, RZ
B2001-184	8	8	9	5	5	7	7	6	2	7	5	3	3	0	-	1	0	0	0	^RZ
B2001-29	9	8	9	6	6	7	7	3	2	7	8	8	4	0	-	13	0	0	0	^DAE, ^MS, ^DSA, RZ
B2001-6	6	8	7	5	6	6	5	7	6	8	5	8	5	0	-	0	1	0	0	PTS
B2008-34	5	8	8	5	6	8	7	7	3	7	4	8	5	0	-	0	0	0	0	RZ, MS, SS
B2016-31	5	8	8	5	8	8	7	3	3	7	8	8	5	0	-	0	0	0	0	SR, MS, EL, ~DAE

¹ See NE-184 Standard Potato Rating System for key to scores.² HN=heat necrosis; HNR=average heat necrosis rating (Rating Scale: 1= very severe to 9 = absent); HH=hollow heart; VR=vascular ring discoloration; BC=brown center; SR=soft rot³ Comment codes: AC=air cracks; BR=bruise; CPB=Colorado potato beetle; CS=common scab; DAE=deep apical eyes; DSA=deep stolen end; EB=early blight; ECB=European corn borer; EL= enlarged lenticels; FS=fusarium wilt; GC=growth cracks; HI= herbicide injury; HS=heat sprouts; IL=infected lenticels; LB=late blight; LHD=leaf hopper damage; MS=mishaped tubers; PE=pink eye; PR=pink rot; PLRV=potato leaf roll virus; PTS=very pointed tubers; PS=powdery scab; PVA, PVX, PVY=potato viruses A, X, Y; RZ=Rhizoctonia; SEB=stem end browning; SG=secondary growth; SIS=silver scurf; SKN=skins; SS=sun scald; SR=soft rot; STST=sticky stolens; VW=Verticillium wilt; WSTD=weak stand; WW=wire worm; YF=yellow flesh Note: ^ before code indicates high levels.

NORTH DAKOTA

S. Thompson, B. Farnsworth, A. Erickson, G. Secor, N. Gudmestad, M. Schwalbe, J. Lorenzen, A. Lafta, M. Glynn, D. Preston and J. Sowokinos

Crossing and Seedling Production

Approximately 106,000 seedlings were grown in the greenhouse in 2001, representing 390 crosses. Thirty-six percent of the crosses had one or both parents exhibiting resistance to late blight. About 160,000 first year clones were evaluated in the field at Langdon and Larimore, ND, and Crookston, MN. Seedling tubers for these single hills were obtained from the NDSU program (75,563) and others. Twelve hundred were retained for further evaluation in 2002. Seedling tubers, totaling 39,107, were shared with programs in Idaho, Michigan, Minnesota, Texas, and Wisconsin.

Advanced Material

Approximately 1204 second and 240 third year and above, selections were evaluated in the field. Late blight, Colorado potato beetle and cold-sweetening resistance continue to be priorities.

Six yield trials were grown at four locations. Dryland sites were at Hoople, ND and Crookston, MN. Fifty-five selections were evaluated in a replicated trial at Hoople, including several Russet Norkotah line selections from Texas and the NorValley transformed lines. Top performers were Red LaSoda, Red Pontiac and ND5822C-7. In replicated trials at Crookston, yield and quality were severely impacted by flooding in June and only one replicate was salvageable. Irrigated sites were at Dawson and Larimore, ND, with 53 and 55 selections, respectively, evaluated in the replicated trials. Top performers at Dawson were TX1385-1 Russ, Russet Norkotah and Red Pontiac with total yields exceeding 350 cwt/acre. The Larimore trial was planted in a commercial field of Russet Burbank, which was yielding in excess of 500 cwt/acre. Red Pontiac, ND5822C-7 and Red LaSoda were top producers, all yielding greater than 530 cwt/acre and 89% US No. 1 tubers.

Blackspot bruise potential was evaluated in 2001. Sensory evaluation of advanced selections and cultivars is conducted on tubers baked, boiled and microwaved, in addition to french fries and potato flakes. Approximately 100

clones, including North Central Regional Trial entries, were evaluated in fall/winter 2001/2002.

Research on cold-sweetening resistance continued with 29% of 145 clones tested having cold chipping/processing ability in their background possessing acceptable chip color after eight weeks at 6°C. Promising advanced chip selections include ND2470-27 and ND5822C-7; both possess cold-sweetening resistance. ND2470-27 has excellent potential as a dual-purpose chipping and tablestock cultivar with attractive appearance. Yields have been high, surpassing Norchip in multiple year/location trials. ND5822C-7 is an exceptionally high yielding selection with superior chipping ability and appearance; it is dual-purpose. ND5822C-7 is suitable for production under irrigated or dryland conditions, it exhibits stress resistance (hail, flooding), and it demonstrates preferential feeding resistance to the Colorado potato beetle (CPB). Four NorValley selections (NVT719, NVT765, NVT402 and NVT737) transformed using antisense technology for cold-sweetening resistance were among the top performers in evaluations of advanced breeding clones conducted by Dr. Joseph Sowokinos.

Promising advanced red selections include ND3196-1R and ND5084-3R; both are round, dark red-skinned selections with fresh market potential. ND3196-1R produces a high percentage of marketable tubers, maintains color in storage and has excellent culinary quality. ND5084-3R sets and bulks early, although vine maturity is medium-late, making it suitable for the early red market. Although stolon attachment under certain conditions has been a shortcoming, producers in Pennsylvania and eastern Canadian provinces are interested. NDSU participated in the release of AC Peregrine Red, tested as ND2937-3, with Agriculture and Agri-Food Canada. The most advanced russet selection is AND9552-7Russ, which combines cold-processing potential and moderate late blight resistance.

Germplasm Enhancement

Much of the germplasm enhancement work is conducted by collaborating programs, including mapping, marker development and disease screening. These included Drs. James Lorenzen and Abbas Lafta (germplasm enhancement) and Drs. Neil Gudmestad and

Gary Secor (potato pathology) in 2001. We gratefully acknowledge their efforts.

Progress was made in mapping candidate genes for leptine synthesis and developing new microsatellite markers. One candidate gene is the class of P450 monooxygenase genes that may be responsible for hydroxylation of solanidine to start the pathway for leptine synthesis. Eleven acyltransferases have been mapped to date in diploid populations. These will also be mapped in tetraploid populations to determine genetic proximity to the acetylation function responsible for leptine synthesis. Primers were designed for 50 new potato simple sequence repeat (SSR) markers. These are currently being mapped. Clones derived from crossing CPB resistant parents were planted in a field plot to screen for resistance to CPB. Beetle populations were inadequate to clearly differentiate the resistant phenotypes.

Selections were made from eleven families using *S. etuberosum*, which possesses extreme resistance to the green peach aphid, potato aphid, PLRV and PVY. Seventy-nine progeny were selected for agronomic characteristics from a previously tested population and will continue evaluation. Additional selections from one family were retained following the first field generation at Langdon.

Advanced selections were evaluated for disease reaction to ring rot, silver scurf and scab in the field as a measure of resistance. Advanced selections and cultivars from the ND and USDA potato breeding programs were screened for resistance to late blight (US8) in the greenhouse using a detached leaf assay and in the field. In 2001, 137 entries were tested and 60 had 10% late blight infection or less. At Casselton, 568 genotypes from the late blight resistance breeding work were evaluated; 195 were retained for further testing.

Thirty-five potato cultivars were screened for their response to pink rot, caused by *Phytophthora erythroseptica*, and leak, caused by *Pythium ultimum*, to determine if resistance to these diseases exists in commercially acceptable cultivars. Atlantic, Norchip, Ranger Russet and Pike exhibited resistance to pink rot, while Snowden was the only cultivar tested that was resistant to leak.

Initial crosses of the dihaploid *S. tuberosum* with *S. microdontum* and *S. chacoense* were made. Additionally, some backcrossed and intercrossed populations were created. Two different backcross populations and one intercross population were evaluated for late blight resistance by detached leaf assay. Tubers from those lines were harvested and kept in cold storage to evaluate cold-sweetening resistance potential. Segregation for late blight was observed in all three populations. Mapping of the backcross populations for late blight and cold sweetening resistance is in progress.

Yield Trials

Yield trials were conducted at four sites in 2001. Two dryland location trials were conducted at Hoople, ND and Crookston, MN. Top yielding entries at Hoople included ND5822C-7 at 363 cwt/A and ND5084-3R at 357 cwt/A. Following closely were Red Pontiac and Red LaSoda at 350 and 347 cwt/A, respectively. The top yielding russet was TX1385-12Russ. Dakota Rose had 93% of its total tubers in the US #1 category. Data are presented in Tables 1 through 4. Cultural information precedes the data tables. Crookston received large amounts of rain in July. Plot areas succumbed to standing water. Unfortunately, little of the yield trials (state, regional and regional preliminary) were salvageable. Thus, Crookston data are not presented in this report.

Irrigated locales included Larimore and Dawson. Fifty-five entries were included in the trial at Larimore and 53 at Dawson. At Larimore, the top yielding red entry was Red Pontiac at 460 cwt/A, followed by Red LaSoda at 432 cwt/A. High yielding chip selections included ND5822C-7 at 440 cwt/A and ATX85404-8 at 407 cwt/A. The top russet selections at this site were two Texas clones, TX1385-12Russ and TX1523-1Russ, with total yields of 379 and 359 cwt/A, respectively. Results are presented in Tables 5 through 8. Red Pontiac was the highest yielding clone of all entries at Dawson at 400 cwt/A. Top chip entries included NDTX4930-5W and NorValley at 363 and 350 cwt/A. TXNS112 and TX1385-12Russ were the best performing russet selections at 370 and 366 cwt/A. Dawson data are presented in Tables 9 through 12.

In chipping evaluations, ATX85404-8 and Dakota Pearl chipped directly out of 42°F across all trials. The russet selection, ATX84706-2Russ chipped directly from 42°F in the irrigated Dawson trial.

Oberg for use of their land and all the plot maintenance during the 2001 growing season.

2000 Sensory Evaluation

Sensory evaluations were conducted in conjunction with the Department of Health, Nutrition and Exercise Sciences on clones and advanced selections for baking, boiling and microwaving, french fries, and potato flakes during the winter months of 2000 and 2001. Two groups of five panelists each evaluated 48 baked, boiled and microwaved samples from Dawson and Hoople. The categories that were used to evaluate them included flavor and mealiness (a measure of dryness versus wetness in the potato texture). Data are presented in Table 13.

Two panels comprised of 6 members each evaluated french fry samples from two irrigated sites, Larimore and Dawson. Categories evaluated included color, texture and taste. Samples were ranked based upon an average of the scores from the three categories. Only two replicates were tasted this time (usually three replicates of each sample are evaluated, but due to improper handling of the tubers, they became bruised and unusually low scores were obtained). Sensory scores are presented in Table 14. The positive information that resulted from this was that some samples had an average color score in the “good” category; at Larimore, TXA549-1Russ, and at Dawson, Umatilla and Shepody. These clones may be more resistant to bruising.

One panel of six panelists evaluated potato flake samples. Categories for evaluation included color, taste, and texture across three replicates. Results are presented in Table 15.

Acknowledgements

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North Dakota Table 1. Cultural information for the 2001 trial at Hoople, North Dakota.

Location: Lloyd and Steve Oberg – Excel Farms

Soil type: Sandy loam

Dates:

Planting: May 4, 2002

Vine kill: September 4, 2002

Harvest: September 17, 2002

Plot information:

Row width: 36 inches

Seed spacing: 12 inches

Hills per plot: 20

Replicates: 4

Method of harvest: Machine

Fertilizer: Data not available

Herbicides applied: Data not available

Fungicides applied: Echo Zn
Supertin

Insecticides applied: Admire
Leverage
Baythroid

Environmental factors:

Heavy rain at early tuber bulking

North Dakota Table 2. Agronomic and quality evaluations for advanced selections and cultivars, Hoople, 2001.

Clone	Vine Maturity ¹	Hollow Heart %	Black- spot Bruise ²	Specific Gravity ³	General Rating ⁴
A79180-10	3.8	32.5	4.8	1.0853	3.0
AND92475-2Russ	2.8	47.5	4.8	1.0745	4.0
Atlantic	3.8	32.5	2.2	1.0940	3.0
ATX84706-2Russ	2.5	27.5	4.6	1.0705	3.0
ATX85404-8	3.3	30.0	2.8	1.0833	3.8
Chieftain	4.0	0	4.1	1.0825	3.3
Dakota Gold	3.5	0	4.8	1.0823	3.0
Dakota Pearl	2.0	5.0	2.0	1.0803	4.0
Dakota Rose	2.0	0	3.7	1.0626	4.0
Goldrush	2.0	22.5	4.4	1.0735	3.8
Ivory Crisp	3.3	2.5	2.0	1.0933	4.0
ND2470-27	3.0	0	2.4	1.0840	4.0
ND3196-1R	1.3	0	4.3	1.0698	4.0
ND4093-4Russ	1.8	30.0	4.9	1.0673	4.0
ND4233-1Russ	1.8	5	4.3	1.0760	3.3
ND4240-9Russ	1.5	15.0	4.1	1.0765	3.5
ND4778-2	2.3	5.0	3.6	1.0800	4.0
ND5084-3R	4.0	0	1.8	1.0653	4.0
ND5256-7R	2.3	2.5	4.6	1.0765	4.0
ND5343-1Russ	2.8	55.0	4.6	1.0743	4.0
ND5775-3	3.3	5.0	4.0	1.0875	4.0
ND5822C-7	4.0	37.5	2.7	1.0948	4.0
ND6489B-3Y	3.0	2.5	3.2	1.0790	3.0
NDTX4271-5R	1.0	0	3.8	1.0655	4.0
NDTX4930-5W	3.3	5.0	2.4	1.0845	3.8
Norchip	2.3	0	3.4	1.0823	3.5
NorDonna	4.0	0	4.1	1.0715	4.0
NorValley	2.3	5.0	3.6	1.0775	4.0
NVI	2.8	2.5	4.1	1.0763	4.0
NVT570	2.3	5.0	3.3	1.0760	4.0
NVT719	2.8	2.5	3.9	1.0835	4.0
NVT737	2.8	5.0	3.3	1.0795	4.0
NVT765	2.3	12.5	4.1	1.0785	4.0
NVT820	2.3	0	3.8	1.0753	4.0
Ranger Russet	4.0	0	4.4	1.0993	3.5
Red LaSoda	3.8	0	3.5	1.0700	3.0
Red Norland	1.8	10.0	4.7	1.0723	3.0
Red Pontiac	4.0	10.0	2.6	1.0645	3.0
Russet Burbank	4.5	27.5	3.0	1.0733	3.0
Russet Norkotah	1.5	32.5	4.4	1.0740	4.0
Sangre	4.5	15.0	2.1	1.0758	3.3
Shepody	3.0	12.5	4.2	1.0843	3.0
Snowden	3.8	5.0	2.7	1.0980	3.0
Stampede Russet	2.0	22.5	4.5	1.0583	4.0
Stirling	4.0	30.0	4.5	1.0665	3.8
TX1385-12Russ	3.0	5.0	3.7	1.0833	3.0
TX1523-1Russ	2.0	5.0	4.3	1.0795	3.0
TX1674-1WY	2.8	0	4.7	1.0905	3.0
TXNS102	2.8	45.0	3.8	1.0725	3.8
TXNS112	2.5	32.5	4.5	1.0723	4.0
TXNS223	2.0	15.0	4.7	1.0783	3.8
TXNS249	2.3	22.5	4.4	1.0735	4.0
TXNS278	2.8	10.0	4.4	1.0753	3.8
Umatilla	4.0	10.0	3.0	1.0888	3.5
Yukon Gold	2.0	52.5	3.6	1.0685	3.8
Mean	2.8	13.8	3.7	1.0779	3.6
LSD ($\alpha=0.05$)	0.6		0.4	-	0.4

¹ Vine maturity, scale 1-5, 1=early, 5=late.

² Blackspot bruise determined by the abrasive peel method, scale 1-5, 1=none, 5=severe.

³ Specific gravity determined by weight-in-air, weight-in-water method.

⁴ General rating based on scale of 1 to 5, 1 = poor, 5 = excellent.

North Dakota Table 3. Yield and market analysis for advanced selections and cultivars, Hoople, 2001.

Clone	Total Yield cwt./a	US No. 1's cwt./a	US No. 1's %	>3.0" %	2.5-3.0" %	2.0-2.5" %	<2.0" %	Culls %
A79180-10	243	213	88	0	42	46	11	1
AND92475-2Russ	267	219	82	0	28	54	18	0
Atlantic	327	283	87	0	50	36	9	4
ATX84706-2Russ	302	285	94	9	65	19	4	1
ATX85404-8	267	229	86	0	39	47	12	2
Chieftain	316	281	89	0	57	32	8	3
Dakota Gold	287	154	53	0	3	50	42	5
Dakota Pearl	258	230	89	0	46	43	10	0
Dakota Rose	243	226	93	0	52	41	6	1
Goldrush	264	221	84	1	28	55	10	6
Ivory Crisp	327	297	91	1	51	39	8	2
ND2470-27	301	254	84	0	36	49	14	2
ND3196-1R	243	212	87	0	36	51	12	1
ND4093-4Russ	203	164	81	0	34	47	18	1
ND4233-1Russ	202	168	83	0	20	63	14	3
ND4240-9Russ	250	157	63	0	2	61	36	0
ND4778-2	216	180	83	0	40	43	15	2
ND5084-3R	357	323	91	3	63	25	7	2
ND5256-7R	255	184	72	0	20	52	27	2
ND5343-1Russ	191	136	71	0	14	56	29	0
ND5775-3	315	258	82	0	21	61	17	1
ND5822C-7	363	307	84	0	34	50	15	0
ND6489B-3Y	273	183	67	0	10	57	31	2
NDTX4271-5R	330	288	87	1	47	40	10	3
NDTX4930-5W	329	295	90	1	43	46	9	1
Norchip	259	215	83	0	31	53	14	3
NorDonna	237	158	66	0	13	54	32	2
NorValley	328	270	82	0	45	37	13	5
NV1	266	210	79	0	39	40	16	5
NVT570	253	200	79	4	38	38	16	5
NVT719	274	224	82	0	44	38	14	5
NVT737	247	207	84	0	47	36	13	3
NVT765	259	206	80	0	30	50	17	3
NVT820	288	228	80	0	34	45	18	3
Ranger Russet	264	213	80	0	21	59	15	5
Red LaSoda	347	312	90	0	54	32	6	4
Red Norland	264	184	70	4	20	50	27	4
Red Pontiac	350	308	88	6	66	16	3	8
Russet Burbank	271	138	51	1	11	39	19	30
Russet Norkotah	284	242	85	0	35	51	12	3
Sangre	235	210	89	0	53	36	5	6
Shepody	256	169	67	0	20	46	12	22
Snowden	262	242	92	0	59	33	7	1
Stampede Russet	208	176	84	0	38	46	13	3
Stirling	281	230	82	0	50	32	15	3
TX1385-12Russ	341	300	88	0	39	49	11	2
TX1523-1Russ	248	225	91	1	65	25	7	2
TX1674-1WY	240	142	59	0	11	48	40	1
TXNS102	268	208	78	0	25	53	20	2
TXNS112	300	231	77	0	19	58	22	1
TXNS223	253	184	71	0	13	58	24	4
TXNS249	230	152	66	0	10	56	32	2
TXNS278	266	196	74	0	29	45	21	5
Umatilla	300	197	66	0	7	58	34	1
Yukon Gold	229	209	91	6	52	34	7	1
Mean	273	221	80	1	34	45	16	3
LSD ($\alpha=0.05$)	40	37						

North Dakota Table 4. Chip evaluation, Hoople, 2001.

Clone	42°F – Direct January 8, 2002	Agtron Reading ¹ 2 Week RC ² January 24, 2002	4 Week RC ² February 4, 2002
A79180-10	34	41	45
AND92475-2Russ	40	46	48
Atlantic	50	55	60
ATX84706-2Russ	45	48.5	50
ATX85404-8	56	59	63
Dakota Gold	43	48	54
Dakota Pearl	57	57	67
Ivory Crisp	53	54	63
ND2470-27	50	54	62
ND4093-4Russ	36	41	47
ND4233-1Russ	39	46	51
ND4240-9Russ	30	41	47
ND4778-2	53	56	59
ND5343-1Russ	43	47	53
ND5775-3	53	54	63
ND5822C-7	50	55	59
ND6489B-3Y	47	48	57
NDTX4930-5W	54	52	62
Norchip	44	51	56
NorValley	52	58	65
NV1	48	51	57
NVT570	54	53	60
NVT719	53	56	64
NVT737	54	56	61
NVT765	55	56	63
NVT820	55	55	62
Ranger Russet	39	45	52
Russet Burbank	39	46	45
Shepody	35	40	43
Snowden	51	51	63
Stampede Russet	34	36	37
Stirling	46	48	49
TX1385-12Russ	43	48	56
TX1523-1Russ	38	44	49
TX1674-1WY	38	44	51
Umatilla	41	46	50
Yukon Gold	37	41	43

¹ Agtron readings 0=90; 0 = black, 90 = white; 55 = minimum acceptable color.

² RC = Reconditioned at 65°F after 8 weeks at 42°F.

North Dakota Table 5. Cultural information for the 2001 trial at Larimore, ND.

Location:	Carl Hoverson Farm, McCanna, ND
Soil type:	Sandy loam
Dates:	
Planting:	April 26, 2001
Vine kill:	September 10, 2001
Harvest:	September 21, 2001
Plot information:	
Row width:	36 inches
Seed spacing:	10.25 inches
Hills per plot:	20
Replicates:	4
Method of harvest:	Machine
Irrigation:	Center pivot
Fertilizer:	PPI: 172 N, 183 P, 300 K, 42 S, 0.73 Bo
	Fertigation: 140 N (as four applications)
Herbicides applied:	Matrix Sencor DF
Fungicides applied:	Tops MZ UltraFlourish Echo Zn Quadris Bravo Zn
Insecticides applied:	Admire Provado Actara Asana
Environmental factors:	Despite heavy rains, field drained well. Some plots in yield trial had poor stand and subsequently yield due to location of pivot track.

North Dakota Table 6. Agronomic and quality evaluations for advanced selections and cultivars, Larimore, 2001.

Clone	Hollow Heart %	Black-spot Bruise ¹	Specific Gravity ²	General Rating ³
A79180-10	0	3.6	1.1020	3.5
AND92475-2Russ	7.5	4.8	1.0790	4.0
Atlantic	12.5	1.8	1.1013	3.5
ATX84706-2Russ	2.5	3.1	1.0773	3.0
ATX85404-8	12.5	2.5	1.0773	4.0
Chieftain	0	3.0	1.0800	4.0
Dakota Gold	0	4.2	1.0818	3.0
Dakota Pearl	7.5	1.3	1.0773	4.0
Dakota Rose	0	2.5	1.0620	4.0
Goldrush	2.5	3.5	1.0688	4.0
Ivory Crisp	0	1.4	1.0933	4.0
ND2470-27	0	1.9	1.0768	4.0
ND3196-1R	2.5	2.9	1.0660	4.0
ND4093-4Russ	0	4.5	1.0720	4.0
ND4233-1Russ	2.5	4.0	1.0733	4.0
ND4240-9Russ	2.5	2.0	1.0710	3.5
ND4778-2	10.0	2.4	1.0773	4.0
ND5084-3R	2.5	1.6	1.0600	3.8
ND5256-7R	0	3.2	1.0760	4.0
ND5343-1Russ	27.5	3.6	1.0790	3.8
ND5775-3	2.5	2.8	1.0853	4.0
ND5822C-7	27.5	2.7	1.0890	4.0
ND6489B-3Y	2.5	3.6	1.0878	3.0
NDTX4271-5R	0	2.8	1.0603	4.0
NDTX4930-5W	7.5	1.8	1.0798	4.0
Norchip	0	2.3	1.0850	4.0
NorDonna	0	2.7	1.0718	4.0
NorValley	0	2.1	1.0800	4.0
NV1	2.5	3.1	1.0780	3.3
NVT570	5.0	2.3	1.0723	4.0
NVT719	0	2.7	1.0758	4.0
NVT737	0	2.4	1.0720	4.0
NVT765	0	2.4	1.0783	4.0
NVT820	0	2.7	1.0788	3.8
Ranger Russet	0	3.7	1.0883	3.5
Red LaSoda	12.5	2.3	1.0705	3.0
Red Norland	2.5	2.7	1.0680	3.8
Red Pontiac	10.0	2.6	1.0688	3.0
Russet Burbank	15.0	3.7	1.0855	3.0
Russet Norkotah	0	3.7	1.0750	4.0
Sangre	10.0	1.3	1.0665	3.5
Shepody	15.0	3.0	1.0833	3.0
Snowden	2.5	2.1	1.0958	3.0
Stampede Russet	2.5	3.4	1.0588	4.0
Stirling	0	3.4	1.0685	4.0
TX1385-12Russ	3.3	2.5	1.0807	3.0
TX1523-1Russ	0	4.1	1.0773	3.0
TX1674-1WY	0	3.9	1.0900	3.3
TXNS102	7.5	2.5	1.0785	4.0
TXNS112	7.5	3.0	1.0795	4.0
TXNS223	2.5	3.2	1.0765	4.0
TXNS249	5.0	3.3	1.0710	3.5
TXNS278	0	2.8	1.0775	4.0
Umatilla	10.0	2.7	1.0890	3.8
Yukon Gold	7.5	2.6	1.0778	4.0
Mean	4.6	2.8	1.0776	3.7
LSD ($\alpha=0.05$)		0.2	0.0161	0.1

¹ Blackspot bruise determined by the abrasive peel method, scale 1-5, 1=none, 5=severe.

² Specific gravity determined by weight-in-air, weight-in-water method.

³ General rating based on scale of 1 to 5, 1 = poor, 5 = excellent.

North Dakota Table 7. Yield and market analysis for advanced selections and cultivars, Larimore, 2001.

Clone	Total Yield cwt./a	US No. 1's cwt./a	US No. 1's %	>3.0" %	2.5-3.0" %	2.0-2.5" %	<2.0" %	Culls %
A79180-10	286	263	93	7	67	19	4	3
AND92475-2Russ	257	232	90	2	48	41	10	0
Atlantic	316	286	90	4	68	18	5	5
ATX84706-2Russ	275	261	94	21	63	10	4	2
ATX85404-8	407	382	94	7	69	17	5	2
Chieftain	253	229	88	4	45	40	11	1
Dakota Gold	264	152	58	0	9	49	33	9
Dakota Pearl	224	207	91	2	60	29	9	0
Dakota Rose	328	299	90	3	66	22	7	3
Goldrush	272	183	67	3	44	20	9	24
Ivory Crisp	324	305	94	4	73	17	5	1
ND2470-27	371	343	93	5	68	20	6	1
ND3196-1R	264	230	87	1	61	24	6	7
ND4093-4Russ	195	169	86	6	47	33	13	1
ND4233-1Russ	237	213	90	1	54	35	8	2
ND4240-9Russ	236	172	71	0	25	46	29	0
ND4778-2	148	129	85	0	56	28	10	5
ND5084-3R	188	160	86	6	60	20	11	3
ND5256-7R	169	124	72	1	36	35	23	4
ND5343-1Russ	221	191	86	0	43	43	14	0
ND5775-3	330	292	89	3	53	33	10	1
ND5822C-7	440	395	90	2	68	19	6	4
ND6489B-3Y	308	266	86	0	53	34	11	2
NDTX4271-5R	218	189	86	3	49	34	12	2
NDTX4930-5W	265	237	86	5	61	20	6	29
Norchip	255	194	76	0	36	40	22	2
NorDonna	228	190	83	0	47	36	13	4
NorValley	311	281	90	3	60	28	9	1
NVI	277	245	89	6	56	27	9	2
NVT570	205	177	86	2	61	23	11	3
NVT719	252	220	87	3	54	30	11	2
NVT737	212	180	85	4	58	23	12	3
NVT765	311	277	89	2	56	31	10	1
NVT820	247	218	88	5	50	33	11	1
Ranger Russet	308	256	83	0	44	39	11	6
Red LaSoda	432	385	90	19	57	13	4	14
Red Norland	142	104	72	0	24	48	28	1
Red Pontiac	460	408	89	29	52	8	3	8
Russet Burbank	385	306	80	1	48	30	6	14
Russet Norkotah	291	259	89	1	54	33	9	2
Sangre	177	166	94	7	70	17	5	2
Shepody	322	224	70	3	50	17	4	26
Snowden	327	307	94	3	68	23	4	2
Stampede Russet	275	247	90	2	56	32	6	4
Stirling	326	298	91	8	67	16	6	3
TX1385-12Russ	379	340	90	13	59	18	4	6
TX1523-1Russ	359	251	97	0	79	18	3	0
TX1674-1WY	240	192	80	0	37	43	2	0
TXNS102	317	283	89	6	54	29	8	3
TXNS112	362	328	91	5	65	21	6	4
TXNS223	291	265	91	8	59	24	8	0
TXNS249	189	159	83	0	31	52	17	0
TXNS278	320	290	90	7	57	27	7	3
Umatilla	345	297	86	1	52	34	9	5
Yukon Gold	259	238	92	10	63	19	5	3
Mean	281	245	86	4	54	28	10	
LSD ($\alpha=0.05$)	16	16						

North Dakota Table 8. Chip evaluation, Larimore, 2001.

Clone	42°F - Direct	Agtron Reading ¹	
	January 8, 2002	2 Week RC ² January 23, 2002	4 Week RC ² February 5, 2002
A79180-10	37	42	49
AND92475-2Russ	45	50	56
Atlantic	47	50	60
ATX84706-2Russ	44	48	58
ATX85404-8	55	58	62
Dakota Gold	48	52	58
Dakota Pearl	61	59	65
Ivory Crisp	53	55	61
ND2470-27	51	54	62
ND4093-4Russ	40	50	55
ND4233-1Russ	37	48	52
ND4240-9Russ	32	40	51
ND4778-2	57	57	62
ND5343-1Russ	39	49	53
ND5775-3	56	54	61
ND5822C-7	53	54	60
ND6489B-3Y	53	55	58
NDTX4930-5W	53	53	62
Norchip	47	55	59
NorValley	55	60	63
NV1	52	54	56
NVT570	53	57	59
NVT719	58	58	62
NVT737	52	56	61
NVT765	53	57	63
NVT820	54	57	64
Ranger Russet	39	51	54
Russet Burbank	46	50	50
Shepody	38	49	52
Snowden	56	57	63
Stampede Russet	37	39	43
Stirling	42	46	43
TX1385-12Russ	46	50	59
TX1523-1Russ	37	42	50
TX1674-1WY	45	46	52
Umatilla	46	48	58
Yukon Gold	35	40	47

¹ Agtron readings 0=90; 0 = black, 90 = white; 55 = minimum acceptable color.

² RC = Reconditioned at 65°F after 8 weeks at 42°F.

North Dakota Table 9. Cultural information for the 2001 trial at Dawson, N.D.

Location:	Dawson
Soil type:	Sandy loam
Dates:	
Planting:	May 16, 2001
Vine kill:	September 12, 2001
Harvest:	September 27, 2001
Plot information:	
Row width:	38 inches
Seed spacing:	12 inches
Hills per plot:	20
Replicates:	4
Method of harvest:	Machine
Irrigation:	Center pivot
Fertilizer:	PPI: 150 K
	Banded at planting: 79 N, 202 P
	Broadcast incorporated: 69 N
	Foliar (as six applications, not chemigated): 90 N
Herbicides applied:	Prowl
	Sencor
	Matrix
Fungicides applied:	Dithane
	Quadris
	Bravo Zn
Insecticides applied:	Admire
	Asana
Environmental factors:	
	Moisture stress from early to late tuber bulking.

North Dakota Table 10. Agronomic and quality evaluations for advanced selections and cultivars, Dawson, 2001.

Clone	Hollow Heart %	Black-spot Bruise ²	Specific Gravity ³	General Rating ⁴
A79180-10	5.0	2.9	1.0878	4.0
A8893-1	5.0	2.5	1.0813	3.5
A9045-7	0	3.3	1.0848	3.8
AND92475-2Russ	12.5	4.2	1.0860	4.0
Atlantic	37.5	1.8	1.0860	3.3
ATX84706-2Russ	12.5	2.7	1.0750	3.0
ATX85404-8	7.5	2.1	1.0740	3.5
Chieftain	0	2.6	1.0808	3.3
Dakota Pearl	27.5	1.3	1.0848	4.0
Dakota Rose	0	2.6	1.0670	4.0
Goldrush	12.5	2.5	1.0780	4.0
Ivory Crisp	7.5	1.6	1.0888	3.8
Liberty	5.0	3.2	1.0878	4.0
ND2470-27	0	2.0	1.0805	3.8
ND3196-1R	2	2.4	1.0775	3.8
ND4093-4Russ	17.5	3.9	1.0788	3.8
ND4233-1Russ	0	3.0	1.0825	3.5
ND4240-9Russ	5.0	1.8	1.0803	3.8
ND4778-2	10.0	2.3	1.0808	4.0
ND5084-3R	0	2.0	1.0610	4.0
ND5256-7R	2.5	3.3	1.0740	3.8
ND5775-3	0	2.9	1.0820	3.8
ND5822C-7	20.0	2.3	1.0873	4.0
NDTX4271-5R	0	2.6	1.0685	4.0
NDTX4930-5W	0	1.9	1.0833	3.3
Norchip	0	1.9	1.0825	3.3
NorDonna	0	3.2	1.0733	3.8
NorValley	0	2.6	1.0805	4.0
NV1	10.0	2.7	1.0765	4.0
NVT570	5.0	2.4	1.0775	3.8
NVT719	0	2.3	1.0823	4.0
NVT737	0	2.5	1.0860	3.8
Ranger Russet	0	3.4	1.0835	3.8
Red LaSoda	0	2.7	1.0715	3.0
Red Norland	0	3.6	1.0725	3.8
Red Pontiac	2.5	1.8	1.0640	2.8
Russet Burbank	5.0	2.5	1.0825	3.0
Russet Norkotah	2.5	3.5	1.0768	4.0
Sangre	0	1.5	1.0650	3.3
Shepody	0	2.1	1.0800	3.3
Snowden	10.0	2.1	1.0825	3.3
Stampede Russet	0	4.1	1.0710	3.8
Stirling	7.5	2.8	1.0738	4.0
TX1385-12Russ	17.5	1.7	1.0773	2.8
TX1523-1Russ	0	2.4	1.0788	3.5
TX1674-1WY	0	3.9	1.0878	3.8
TXNS102	2.5	3.5	1.0778	4.0
TXNS112	0	3.5	1.0823	4.0
TXNS223	12.5	3.3	1.0745	4.0
TXNS249	0	3.4	1.0770	3.8
TXNS278	12.5	3.3	1.0763	4.0
Umatilla	0	2.4	1.0833	4.0
Yukon Gold	0	2.0	1.0848	3.8
Mean	5.6	2.6	1.0788	3.7
LSD ($\alpha=0.05$)		0.7	0.0077	0.6

¹ Vine maturity, scale 1-5, 1=early, 5=late.

² Blackspot bruise determined by the abrasive peel method, scale 1-5, 1=none, 5=severe.

³ Specific gravity determined by weight-in-air, weight-in-water method.

⁴ General rating based on scale of 1 to 5, 1 = poor, 5 = excellent.

North Dakota Table 11. Yield and market analysis for advanced selections and cultivars, Dawson, 2001.

Clone	Total Yield cwt./a	US No. 1's cwt./a	US No. 1's %	>3.0" %	2.5-3.0" %	2.0-2.5" %	<2.0" %	Culls %
A79180-10	332	321	96	10	61	25	3	1
A8893-1	315	288	91	13	49	29	5	4
A9045-7	332	290	87	10	27	50	11	2
AND92475-2Russ	229	189	82	2	33	47	16	2
Atlantic	243	219	90	12	57	21	6	4
ATX84706-2Russ	272	238	87	43	37	7	1	12
ATX85404-8	305	278	91	2	66	23	5	5
Chieftain	313	298	95	1	74	20	4	0
Dakota Pearl	227	208	92	1	52	38	7	1
Dakota Rose	318	298	94	4	71	18	5	2
Goldrush	334	256	77	7	42	27	7	16
Ivory Crisp	314	294	94	12	64	18	4	2
Liberty	247	212	85	5	46	34	8	6
ND2470-27	225	197	87	3	61	23	9	4
ND3196-1R	294	280	95	1	68	26	4	1
ND4093-4Russ	234	219	94	15	53	26	5	2
ND4233-1Russ	325	273	84	11	37	36	8	9
ND4240-9Russ	328	281	85	2	32	51	12	3
ND4778-2	199	177	89	5	69	15	4	7
ND5084-3R	278	260	92	11	61	20	5	3
ND5256-7R	269	249	93	1	54	38	6	1
ND5775-3	310	289	93	0	55	38	6	1
ND5822C-7	337	300	88	0	47	41	10	2
NDTX4271-5R	284	253	89	0	60	29	10	1
NDTX4930-5W	363	328	90	13	60	17	4	6
Norchip	272	216	79	1	40	39	13	8
NorDonna	188	151	80	0	34	45	19	1
NorValley	350	313	89	3	53	33	7	8
NVI	238	207	86	9	46	31	8	5
NVT570	272	232	85	3	45	37	10	5
NVT719	289	264	91	4	64	24	6	2
NVT737	307	268	87	2	57	28	9	4
Ranger Russet	301	247	82	2	18	62	14	4
Red LaSoda	333	303	90	20	57	14	3	7
Red Norland	272	228	84	0	33	51	16	0
Red Pontiac	400	332	79	25	47	7	2	19
Russet Burbank	286	212	74	6	24	43	13	13
Russet Norkotah	353	337	96	22	51	23	4	0
Sangre	163	146	85	6	55	24	10	5
Shepody	234	175	75	12	30	34	10	15
Snowden	242	231	95	6	62	26	5	1
Stampede Russet	281	257	91	10	42	39	6	2
Stirling	247	226	91	3	57	30	8	1
TX1385-12Russ	366	340	93	33	41	18	3	4
TX1523-1Russ	307	285	93	1	71	22	7	0
TX1674-1WY	275	222	80	1	29	50	16	4
TXNS102	359	330	92	18	46	28	6	2
TXNS112	370	325	88	12	42	34	9	4
TXNS223	324	299	91	20	44	27	7	2
TXNS249	319	282	88	8	34	47	10	2
TXNS278	352	321	91	15	44	33	7	2
Umatilla	288	239	82	3	32	47	15	2
Yukon Gold	268	243	90	6	62	21	4	6
Mean	292	259	88	8	49	31	8	4
LSD ($\alpha=0.05$)	88	88						

North Dakota Table 12. Chip evaluation, Dawson, 2001.

Clone	42°F - Direct	Agtron Reading ¹	
	January 7, 2002	2 Week RC ²	4 Week RC ²
		January 22, 2002	February 5, 2002
A79180-10	46	46	49
A8893-1	47	50	55
A9045-7	43	47	57
AND92475-2Russ	50	52	60
Atlantic	52	54	58
ATX84706-2Russ	55	56	63
ATX85404-8	59	56	61
Dakota Pearl	58	59	63
Ivory Crisp	56	54	62
Liberty	53	54	63
ND2470-27	59	56	65
ND4093-4Russ	44	46	52
ND4233-1Russ	44	54	56
ND4240-9Russ	41	50	57
ND4778-2	53	54	61
ND5775-3	56	54	60
ND5822C-7	55	57	59
NDTX4930-5W	59	58	61
Norchip	50	50	58
NorValley	59	60	63
NV1	55	55	61
NVT570	59	56	64
NVT719	60	58	64
NVT737	62	61	66
Russet Burbank	44	47	57
Snowden	60	58	63
Stirling	52	52	58
TX1385-12Russ	50	56	57
TX1523-1Russ	44	50	57
TX1674-1WY	51	52	57
Yukon Gold	42	48	53

¹ Agtron readings 0=90; 0 = black, 90 = white; 55 = minimum acceptable color.

² RC = Reconditioned at 65°F after 8 weeks at 42°F.

North Dakota Table 13. Average boiling, baking and microwaving scores, 2000.

Cultivar Or Selection	Boiling		Baking		Microwaving		# of entries
	Mealiness	Flavor	Mealiness	Flavor	Mealiness	Flavor	
A 79180-10	5.7	6.3	7	6.3	6.5	6.3	3
A 8792-1	5	5	4.7	4.8	5	4.7	2
AO 87277-6	5.8	5.2	6.3	5.9	7	6.4	2
AND 92475-2 Russ	5.5	5.6	5.6	5.8	5.6	5.5	5
ATX 9202-3Russ	5	6	7.5	6.5	5.3	4.8	1
ATX 92303-7	6.6	6.3	5.5	5.8	5.5	5.3	2
ATX 84706-2Russ	5.1	6.1	5.4	6.0	5.1	6	3
Goldrush	5.8	5.8	5.5	6.0	4.9	5.7	4
ND 4093-4Russ	5.5	6.1	5.5	5.6	5.9	6.4	4
ND 4233-1Russ	7	5.8	5.3	5.2	7.2	6.4	1
Ranger	7	6.3	7	6.4	6.7	6.2	4
Russet Burbank	6.2	5.5	6.2	6.8	5.6	6.3	4
Russet Norkotah	5.7	6.1	5.5	5.8	5.5	6.1	4
Shepody	5.1	5.3	5.1	5.3	5.6	6.1	4
TX 1385-12Russ	4.8	6.6	5.2	5.2	4.4	5.6	1
TX 1523-1Russ	5.7	5.3	6.5	4.8	5.8	6.5	3
TXA 549-1Russ	5.8	6	5.4	5.4	4.7	5.7	4
TXNS 102	5.2	5.8	5.7	5.7	5.7	5.3	2
TXNS 112	5.8	6.3	6.5	6.3	5.7	6.8	2
TXNS 223	5.2	5.9	6.1	6.0	4.9	5.9	2
TXNS 278	5.3	6.2	6	6.1	5.4	5.6	2
TXNS 296	5.7	5.7	6.1	5.2	5.6	5.7	2
Atlantic	6.6	5.5	6.6	7.2	6.1	6.6	2
A 91790-13	5.2	4.5	5.5	5.3	5.3	5.6	2
ATX 85404-8	5.6	5.5	5.4	6.0	5.9	4.5	2
Dakota Pearl	4.8	4.8	5.6	5.3	5	5.5	4
ND 2470-27	5.4	6	5.5	5.7	5.9	5.9	4
ND 4778-2	5.7	5.8	5.5	5.9	5.8	5.8	4
ND 5775-3	4.9	5.1	5.1	5.6	4.8	5.6	2
ND 5822C-7	6.1	5.4	5.2	5	5.6	5.3	4
NV-1	4.4	5.2	4.9	5.5	5	4.9	2
NVT-570	3.3	4.5	5.8	6.0	5	6.3	1
NVT 719	4.7	4.2	5.5	6.2	5.6	5.1	2
NVT 765	5.2	5.2	4.7	5.5	5.4	5.5	2
NVT 820	5.4	5	4.7	5	4.8	5.2	1
Norchip	5	5.2	5.2	5.6	4.7	5.7	4
NorValley	5.6	5.5	5.3	4.6	5.7	4.9	4
Snowden	6.4	5.1	6.2	5.6	6.7	5.2	2
Stirling	4	4.8	5	5.7	4.3	5.3	2

North Dakota Table 13. Continued.

Cultivar Or Selection	Boiling		Baking		Microwaving		# of entries
	Mealiness	Flavor	Mealiness	Flavor	Mealiness	Flavor	
A 92657-1R	3.8	6.1	3.6	6.7	3.9	6.4	2
Dakota Rose	3.7	5.1	3.8	5.0	3.3	4.7	4
ND 5084-3R	4.4	6.5	3.1	5.2	3.5	6.2	4
ND 5256-7R	5.2	5.9	4.8	6.0	4.7	6	4
NDTX 731-1R	3.6	5.5	3.3	5	3.5	5.5	4
NorDonna	5.7	5.3	3.4	5.1	3.5	5.5	4
Red La Soda	4.3	4.3	4.9	5.0	4.2	5.1	3
Red Norland	4.1	5	3.7	5.3	3.1	5	4
Red Pontiac	4.2	5.7	4.7	6.1	4.3	6.4	3

Rating Guide:

Flavor: a measure of good palette. 1-10 with 1 being poorest and 10 being good.

Mealiness: a measure of wetness vs dryness in the sample. 1-10 with 1 being the most wet and 10 being the most dry.

North Dakota Table 14. Average french fry evaluation scores, 2000.

Cultivar or Selection Irrigated Sites	Color -----	Texture *Rating	Flavor -----	Combined Sensory Score ¹
Larimore				
TXA 549-1Russ	7.8	6.2	6.3	6.8
TX 1523-1Russ	6.1	6.4	6.5	6.3
Umatilla	6.5	6.2	6.1	6.3
Shepody	6.2	5.9	5.5	5.9
Russet Norkotah	5.7	5.8	5.8	5.8
ATX 84706-2Russ	6.2	5.3	6.1	5.8
TXNS 296	4.7	5.2	5.6	5.2
Ranger	4.8	5.4	5.3	5.2
TXNS 278	4.4	5.4	5.5	5.1
ND 4093-4Russ	4.4	5.0	5.2	4.8
Goldrush	4.3	5.0	5.0	4.8
TXNS 102	4.5	4.9	5.0	4.8
TXNS 223	3.8	5.3	5.2	4.8
A79189-10	4.3	4.7	4.8	4.6
TXNS 112	3.1	4.4	4.6	4.0
ATX 9202-3Russ	2.0	4.9	4.5	3.8
Dawson				
Umatilla	7.1	6.2	6.4	6.6
Shepody	7.0	6.7	6.1	6.6
TXA 549-1Russ	6.5	6.5	6.3	6.5
ND 4233-1Russ	6.5	6.3	6.6	6.5
A92303-7	6.8	6.0	6.3	6.4
TX 1523-1Russ	5.9	6.4	6.0	6.1
Ranger	5.8	6.2	5.9	5.9
A8792-1	5.8	5.8	5.8	5.8
AO87277-6	5.3	6.2	5.9	5.8
ND 4093-4Russ	5.6	5.8	6.0	5.8
TX 1385-12Russ	5.6	5.4	5.8	5.6
TXNS 102	5.2	5.3	5.9	5.5
TXNS 112	4.5	5.5	6.1	5.4

¹ Combined Sensory Score is the average of the three ratings for color, texture, and taste.

*Rating Guide	7-9	Good
	5-6	Fair, and acceptable
	1-4	Poor, not acceptable

North Dakota Table 14. Continued.

Cultivar or Selection	Color -----	Texture *Rating	Flavor -----	Combined Sensory Score ¹
Dawson				
ATX 84706-2Russ	4.6	5.6	5.5	5.3
Russet Burbank	5.2	5.5	5.2	5.3
TXNS 223	5.2	5.0	5.5	5.2
AND92475-2Russ	5.2	5.1	5.2	5.2
A 79180-10	4.8	5.4	5.0	5.1
Russet Norkotah	4.3	5.2	5.5	5.0
Goldrush	4.5	4.9	5.1	4.8
TXNS 296	4.0	4.8	5.3	4.7
TXNS 278	3.9	4.5	4.6	4.3
ATX9202-3Russ	2.8	4.9	4.4	4.0

¹ Combined Sensory Score is the average of the three ratings for color, texture, and taste.

*Rating Guide	7-9	Good
	5-6	Fair, and acceptable
	1-4	Poor, not acceptable

North Dakota Table 15. Average flake evaluation scores, 2000.

Cultivar or Selection	Color	Texture	Flavor	Combined Sensory Score ¹
Hungry Jack ²	7.2	7.2	7.6	7.3
ND 4093-4Russ	7.1	6.6	6.9	6.9
Goldrush	7.3	6.5	6.2	6.7
Umatilla	6.5	6.9	6.6	6.7
Norchip	6.9	6.3	6.8	6.7
NorValley	7.1	6.2	6.8	6.7
Atlantic	7.0	6.0	6.8	6.6
Dakota Pearl	7.0	6.1	6.3	6.5
TXA 549-1Russ	6.3	6.4	6.4	6.4
ND 2470-27	7.2	6.1	6.0	6.4
Shepody	6.2	5.9	6.6	6.2
Russet Burbank	6.3	6.0	6.4	6.2
ND 5822C-7	7.0	5.6	5.8	6.1
A79180-10	6.6	5.6	6.1	6.1
Ranger	6.2	5.7	6.1	6.0
Russet Norkotah	4.7	5.1	5.6	5.1

¹ Combined Sensory Score is the average of the three ratings for color, texture, and taste.

***Rating Guide**

7-9	Good
5-6	Fair, and acceptable
1-4	Poor, not acceptable

² Hungry Jack was sampled each day as a standard. Samples were tasted 3 times on 6 different days; Hungry Jack's average is for 6 times while the cultivars and selections average is for 3 times.

OHIO

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Summary

Ohio cooperates with private and public breeders in the U.S. and elsewhere in evaluating varieties and experimental lines of fresh and processing potatoes. In 2001, we evaluated a total of 133 varieties and experimental lines developed in ten breeding programs (Table 4). Entries were placed into one of five studies completed at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, OH; North-Central Regional Project 84 (NCR-84), Northeast Regional Project 184 (NE-184), Double Observation (DOP), Single Observation (SOP), and Yellow-fleshed experiment (Y). Named varieties were included in at least one study, numbered entries in only one study. Entries were contributed by breeding programs in Alberta, Canada (CAA), Colorado (CO), Maine (ME), Michigan (MI), Minnesota (MN), New York (NY), North Dakota (ND), Wisconsin (WI), Oregon (OR) and the USDA-ARS (ARS) in Beltsville, MD. A total of 33 entries were contributed by ME, 22 by NY, 10 by WI, 4 by MN, 3 by CAA, 4 by MI, 3 by ND, 1 by CO, 1 by OR, and 39 by ARS, along with 19 named U.S. varieties. Selected entries from ARS, ME, CO, WI and NY represented the NE-184 Regional Project. Selected entries from CAA, MI, MN, ND, OR, and WI represented the NCR-84 Regional Project.

The studies were established to evaluate the growth and market traits of each entry when grown under non-irrigated conditions in Ohio. The fact that the trials at the OARDC are not irrigated tends to affect the performance of individual entries. Seasonal climatic data for the evaluation site are shown in Table 3.

Approximately equal portions of Ohio's potato crop are sold fresh market and to potato chip manufacturers. Therefore, as in past years, consumer-oriented aspects of cooking quality are also being assessed in a number of entries.

Planting

Seed potatoes were cut and treated with Mancozeb on May 1-2 and then cured and stored under recommended temperature and humidity conditions at the OARDC until planting on June 11. Table 1 contains information on cultural, nutrient, and pest management practices. Table 2 contains pre-plant soil analysis results. Soil type was a well-drained Wooster silt loam. All entries in the NCR-84 and NE-184 experiments were replicated three times. Entries in the Observation studies were replicated once or twice depending on seed availability (Table 4). Plant stands were recorded six weeks after planting.

Field Observations

Whole plots were harvested on October 1. At harvest, observations were taken on tuber characteristics and total plot tuber weight was recorded. Observations included tuber shape, color, surface texture, eye depth, general appearance, and uniformity. These observations, along with yield data, determined which entries were included in chip and cooking quality evaluations and which may be evaluated in 2002. A 15-20 lb sample from each entry in the NCR-84 and NE-184 studies and from promising entries in the Yellow-fleshed experiment and Observation plots were saved for chipping. In addition, tubers were graded for size on November 1. At grading, 10 randomly selected tubers from each replicate were examined for hollow heart and other internal defects. Scab and external defects were rated in a second random sample of 20 tubers.

Chipping and Cooking Quality Evaluations

Samples were held in refrigerated storage (44-48°F) October 1 - October 23 and then removed from storage and held under ambient conditions (approx. 70°F) until being processed on November 19.

For chipping quality evaluation, 4-5 randomly selected tubers were placed in an abrasive peeler and sliced to an approximate thickness of 0.063 inches (approximately 16 slices per inch). Raw slices were rinsed in cold water and then fried in a continuous fryer containing clear liquid shortening maintained at 185°C (355°F). After frying, a representative sample was taken for visual color evaluation by the standards contained in the manual published by the SFA by

which chips light in color are scored “1” and very dark chips are scored “5.” Chip color was also measured with an Agtron Electronic Model M-350. Agtron readings and chip color are negatively related (high readings indicate lighter chip color). Samples were also evaluated for blistering. The percentage of chips with blister(s) greater than 1 cm (0.39 in.) was recorded.

Cooking quality of a number of entries from all experiments will be assessed using tubers held under refrigerated conditions for four months. These data will be summarized in a separate report.

Results

Yield, plant and tuber trait, and chipping quality data are presented in Tables 5-11. Subjective descriptions of each entry recorded at harvest are also available upon request. Total and U.S. #1 yield averaged 235 and 154 cwt/A across all studies, respectively, with a range of 77-481 (total) and 34-350 (U.S. #1) cwt/A. Average total and U.S. #1 yield in the NCR-84 study was 218 and 149 cwt/A, respectively. Average total and U.S. #1 yield in the NE-184 study was 223 and 218 cwt/A, respectively. Twenty-one entries were rated as early, 52 as mid-season, and 65 as late. Of the 77 entries evaluated, overall tuber appearance was rated poor-fair, fair-good, and good-excellent in 9, 44, and 24 entries, respectively. Of the entries evaluated for chipping quality, specific gravity was ≥ 1.080 in nine entries and chip quality (based on SFA color and percent blistering) was acceptable in 38 entries.

Ohio Table 1. Cultural, nutrient, and pest management practices for the Ohio Potato Germplasm Trials completed at the OARDC in Wooster, OH in 2001.

Date Planted	June 11
Date Harvested	October 1
2000 Main Crop	Soybean
2000 Cover Crop	Winter Wheat
Fertilizer	600 lb 10-20-20 (disk) 600 lb 10-20-20 (planting)
Herbicide	June 12, 2001 Dual II (2 pt/A) + Sencor DF (1 lb/A)
Spacing Between Hill x Row	12" x 36"
Plot Size	3' x 25'
Soil Conditions at Planting	Moist
Irrigation (inches)	None
Sprays Applied:	
June 11 (planting)	Admire
July 6	Dithane DF (2 lb/A) and Asana XL (8 oz/A)
July 12	Dithane DF (2 lb/A) and Baythroid (2 oz/A)
July 20	Dithane DF (2 lb/A) and Asana XL (8 oz/A)
July 28	Dithane DF (2 lb/A) and Asana XL (8 oz/A)
August 3	Dithane DF (2 lb/A) and Baythroid (2 oz/A)
August 11	Bravo 720 (2 pt/A) and Thiodan 3 EC (1 pt/A)
August 21	Bravo 720 (2 pt/A)
August 29	Bravo 720 (2 pt/A)
September 12	vine killer Rely + sticker

Ohio Table 2. Soil analyses for land used in the Ohio Potato Germplasm Trials completed at the OARDC in Wooster, OH in 2001.

Factor	Level
pH	6.2
P ($\mu\text{g/g}$)	48
K ($\mu\text{g/g}$)	100
Ca ($\mu\text{g/g}$)	900
Mg ($\mu\text{g/g}$)	231

Soil analyses conducted at Service Testing and Analytical Research (STAR) Lab at the OARDC, Wooster, OH.

Ohio Table 3. Seasonal and historical climatic data for the Ohio Potato Germplasm Trials completed at the OARDC in Wooster, OH in 2001.

	<u>June</u>	<u>July</u>	<u>August</u>	<u>September 1-20</u>
2001 Avg. High Temp. (F)	80	84	83	73
2001 Avg. Low Temp. (F)	57	59	61	50
2001 Avg. Temp. (F)	68	71	69	61
Historical Normal Avg. Temp. (F)	68	71	72	63
2001 Total Precip. (in.)	1.45	1.07	5.13	1.36
50-year Avg. Precip. (in.)	3.90	4.10	3.60	3.10
2001 Precip. deficit/surplus (in.)				
period	-2.45	-3.03	+1.53	-1.74
cumulative	-2.45	-5.48	-3.95	-5.69

OhioTable 4. List of varieties and experimental lines planted in the Ohio Potato Germplasm Evaluations at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, OH in 2001.

----- Regional Project and Study -----			
NE-184	NCR-84	Single Observation	Double Observation
1 AF1455-20	1 A90586-11	1 AF2206-7	1 AF2082-12
2 AF1753-16	2 Atlantic	2 AF2206-9	2 AF2115-1
3 AF1758-7	3 C75-5-297	3 AF2207-4	3 AF2138-1
4 AF1763-2	4 CV89023-2	4 AF2211-6	4 AF2151-1
5 AF1775-2	5 Dark Red Norland	5 AF2211-9	5 ARSW96-40022-5
6 AF1938-3	6 Michigan Purple	6 AF2211-14	6 ARSW96-4662-2
7 Atlantic	7 MN18747	7 AF2215-1	7 B1826-1
8 B0766-3	8 MN19157	8 AF2215-3	8 B1870-3
9 B1425-9	9 MN19315	9 AF2215-4	9 B1880-6
10 B1829-5	10 MN19525	10 AF2215-5	10 B1919-9
11 B1871-1	11 MSE192-8RUS	11 AF2217-3	11 B1927-14
12 Chieftain	12 MSF099-3	12 AF2219-1	12 B1933-3
13 CO86218-2	13 MSF373-8	13 AF2220-1	13 B1957-1
14 Dark Red Norland	14 ND3196-1R	14 AF2220-3	14 B1964-4
15 Eva (NY103)	15 ND3574-5R (Dakota Rose)	15 AF2220-7	15 Langlade
16 Katahdin	16 ND5084-3R	16 AF2222-2	16 Ware's Pride
17 Kennebec	17 NorValley	17 AF2222-4	
18 Keuka Gold (NY101)	18 Red Pontiac	18 AF2230-2	Yellow-Fleshed
19 NY102	19 Russet Burbank	19 AF2230-5	1 B1752-5
20 NY112	20 Russet Norkotah	20 AF2260-5	2 B1801-6
21 NY115	21 Snowden	21 AF2260-7	3 B1806-8
22 R17-7	22 V0123-25	22 AF2262-1	4 B1816-5
23 Russet Burbank	23 V0168-3	23 AF2269-8	5 B1950-8
24 Snowden	24 V0299-4	24 ARS-W97-4290-1	6 B1951-5
25 Superior	25 W1201	25 ARS-W97-4295-1	7 B1952-2
26 W1242	26 W1341	26 B1973-10	8 B2021-3
27 W1313	27 W1386	27 B1976-4	9 B2021-12
28 Yukon Gold	28 W1836-3	28 B1976-6	10 B2024-9
		29 B1979-10	11 B2024-10
		30 B1980-2	12 B2029-1
		31 B2001-186	13 Ilona
		32 B2003-133	14 Keuka Gold (NY101)
		33 B2003-140	15 MSG274-3
		34 B2021-15	16 NY125 (S28-2)
		35 B2027-2	17 T2-2
		36 NY124(514-27)	18 T15-1
		37 T3-5	19 T17-2
		38 T3-9	
		39 T11-2	
		40 T15-3	
		41 T27-21	
		42 T28-1	
		43 U47-2	
		44 U47-21	
		45 U75-1	
		46 U106-26	
		47 U109-6	

Ohio Table 5. Percent stand, maturity, yield and chip quality for entries grown in the Ohio NCR-84 Regional Project experiment in 2001.

Entry #	Entry Name	Stand %	Plant Maturity ¹	Total cwt/A	US # 1 cwt/A	US #1 %	B Size %	Cull %	Specific Gravity	Chip Color ²	Blister ³ %	Agtron ⁴
1	A90586-11	49	7	216	108	50	11	39	1.080	5	0	28.9
2	Atlantic	26	8	152	113	74	5	20	1.079	2	0	59.7
3	C75-5-297	63	9	226	134	59	27	14	1.074	3	20	49.1
4	CV89023-2	42	7	354	218	62	12	26	1.064	5	10	32.9
5	Dark Red Norland	51	4	200	158	79	6	16	< 1.060	4	10	38.4
6	Michigan Purple	52	7	307	189	62	3	35	1.073	3	30	54.0
7	MN18747	48	4	128*	84	66	4	30	1.063	2	20	54.3
8	MN19157	45	5	106	82	77	11	11	1.078	2	0	63.6
9	MN19315	83	6	286	190	66	20	14	1.078	2	20	59.3
10	MN19525	69	7	306*	240	78	12	9	1.074	3	0	42.5
11	MSE192-8RUS	60	6	247	125	51	10	39	1.067	2	30	59.0
12	MSF099-3	27	5	107	66	62	8	30	1.083	3	0	51.8
13	MSF373-8	49	9	256	184	72	3	25	1.075	2	20	55.3
14	ND3196-1R	60	6	228	170	75	6	19	< 1.060	5	0	23.1
15	ND3574-5R (Dakota Rose)	42	4	212	149	70	7	22	< 1.060	2	0	66.5
16	ND5084-3R	80	9	481	350	73	8	19	< 1.060	4	0	43.1
17	NorValley	52	6	187	147	79	8	13	1.068	1	0	67.2
18	Red Pontiac	50	7	94	60	64	11	24	< 1.060	4	20	38.2
19	Russet Burbank	41	5	121	40	33	19	47	1.070	3	20	43.8
20	Russet Norkotah	84	2	180	132	73	13	13	1.063	3	10	46.1
21	Snowden	19	6	81	61	75	11	15	1.083	2	20	63.8
22	V0123-25	56	3	170	109	64	11	25	1.070	2	0	60.7
23	V0168-3	72	2	237	214	90	5	4	1.063	4	0	38.8
24	V0299-4	80	7	293	206	70	18	12	1.065	4	0	48.0
25	W1201	.	.	.	.	.	.	.	.	.	.	.
26	W1341	53	9	194	135	70	8	22	1.075	2	20	64.1
27	W1386	45	7	176	128	73	7	20	1.079	3	10	49.7
28	W1836-3	76	9	276	165	60	23	17	1.078	4	0	43.0
AVERAGE												
			6	218	149	68	11	21		3	10	50

¹ See reference table for rating system.² SFA Standard (1=light, 5=dark)³ Percentage of chips that developed blisters greater than 20 mm in diameter during the frying process.⁴ Agtron 350

* Indicates 3 plants/row were removed at vegetative maturity (prior to tuber maturity) in order to estimate crop harvest index and nutrient use efficiency. Therefore, total and marketable yield presented here are an underestimate of true values.

Ohio Table 6. Tuber characteristics for entries grown in the Ohio NCR-84 Regional Project experiment in 2001. No scab was detected in any sample (data not shown).

Entry #	Entry Name	External ¹			Internal ²			Vascular	Defected tubers %
		Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	Hollow Heart	Discoloration	
1	A90586-11	6	5	4	4	4	1	0	10
2	Atlantic	6	5	2	6	5	5	0	50
3	C75-5-297	7	7	4	5	3	1	0	10
4	CV89023-2	2	7	5	5	6	0	0	0
5	Dark Red Norland	2	6	2	4	6	3	0	30
6	Michigan Purple	1	7	3	5	5	0	0	0
7	MN18747	8	8	4	6	6	0	0	0
8	MN19157	7	6	3	5	5	4	0	40
9	MN19315	7	6	2	6	6	0	0	0
10	MN19525	2	7	4	8	6	0	0	0
11	MSE192-8RUS	5	3	6	7	5	0	0	0
12	MSF099-3	6	5	4	5	4	0	0	0
13	MSF373-8	7	7	3	3	5	0	0	0
14	ND3196-1R	2	7	3	6	5	0	0	0
15	ND3574-5R (Dakota Rose)	2	7	3	5	7	0	0	0
16	ND5084-3R	2	8	1	7	8	0	0	0
17	NorValley	7	6	3	6	7	1	0	10
18	Red Pontiac	2	7	3	3	4	0	0	0
19	Russet Burbank	6	4	6	8	2	0	0	0
20	Russet Norkotah	5	2	7	6	6	1	0	10
21	Snowden	6	6	2	5	5	1	0	10
22	V0123-25	7	7	3	7	6	0	0	0
23	V0168-3	6	5	4	7	7	0	0	0
24	V0299-4	2	7	4	7	5	0	0	0
25	W1201	.	.	.	.	.	.	.	.
26	W1341	7	6	2	5	3	9	0	90
27	W1386	7	7	3	1	2	0	0	0
28	W1836-3	5	3	6	6	2	0	0	0

¹ See reference table for rating system.

² Number of tubers out of 10 tubers that contain the defect.

Ohio Table 7. Percent stand, maturity, yield and chip quality for entries grown in the Ohio NE-184 Regional Project experiment in 2001.

Entry #	Entry Name	Stand %	Plant Maturity ¹	Total cwt/A	US # 1 cwt/A	US #1 %	B				Cull %	Specific Gravity	Chip Color ²	Blister ³ %	Agtron ⁴
							Size %								
1	AF1455-20	56	8	219*	165	75	5				20	1.076	3	0	57.7
2	AF1753-16	50	9	314	84	27	10				63	1.089	2	10	68.1
3	AF1758-7	55	8	210	136	65	15				21	1.061	1	10	43.9
4	AF1763-2	52	3	191*	128	67	15				18	1.063	3	0	45.9
5	AF1775-2	30	9	167	96	57	3				40	1.077	3	10	44.5
6	AF1938-3	20	7									1.069	2	0	62.6
7	Atlantic	53	6	194*	151	78	6				16	1.085	2	10	54.6
8	B0766-3	72	9	304*	236	78	4				18	1.080	2	0	57.4
9	B1425-9	45	6	178*	116	65	13				22	1.091	2	0	57.0
10	B1829-5	50	5	256	186	73	13				14	1.063	2	0	52.8
11	B1871-1	63	5	214	169	79	11				10	1.065	3	0	49.4
12	Chieftain	59	6	280	172	61	14				24	< 1.060	4	0	60.4
13	CO86218-2	45	7	243	146	60	19				21	1.069	3	0	46.5
14	Dark Red Norland	41	6	191*	162	85	6				9	< 1.060	2	0	56.9
15	Eva (NY103)	81	4	245	207	84	7				9	1.070	2	0	40.9
16	Katahdin	83	8	251	174	69	6				24	1.064	2	0	59.2
17	Kennebec	64	7	288*	143	50	16				35	1.073	2	0	53.8
18	Keuka Gold (NY101)	85	7	311	254	82	6				13	1.070	3	10	46.1
19	NY102	62	6	239	172	72	7				21	1.078	2	10	56.3
20	NY112	78	6	254	213	84	6				9	1.077	1	0	59.6
21	NY115	41	6	199*	157	79	6				16	1.070	4	10	56.2
22	R17-7	29	7	125	60	48	14				38	1.068	2	10	45.5
23	Russet Burbank	72	8	176*	42	24	35				41	1.070	4	10	58.4
24	Snowden	75	6	339	259	76	10				13	1.079	2	0	55.7
25	Superior	60	4	195	99	51	7				42	1.065	3	30	60.4
26	W1242	70	6	165	111	67	16				16	1.067	2	10	63.1
27	W1313	22	8	127	52	41	6				54	1.089	1	10	47.2
28	Yukon Gold	32	2	77	34	44	6				48	1.070	4	20	57.5
AVERAGE		55	6	223	148	65	10				25		2	6	54

¹ See reference table for rating system.² SFA Standard (1=light, 5=dark)³ Percentage of chips that developed blisters greater than 20 mm in diameter during the frying process.⁴ Agtron 350

* Indicates 3 plants/row were removed at vegetative maturity (prior to tuber maturity) in order to estimate crop harvest index and nutrient use efficiency. Therefore, total and marketable yield presented here are an underestimate of true values.

Ohio Table 8. Tuber characteristics for entries grown in the Ohio NE-184 Regional Project experiment in 2001.

Entry #	Entry Name	External ¹				Internal ²				Internal Necrosis	Defected Tubers
		Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	Hollow Heart	Vascular Discoloration			
1	AF1455-20	7	6	2	6	5	1	0	0	0	10
2	AF1753-16	6	5	5	9	2	0	0	0	0	0
3	AF1758-7	7	7	3	7	5	0	0	0	0	0
4	AF1763-2	7	7	1	8	7	0	0	0	0	0
5	AF1775-2	7	7	2	7	7	0	1	0	0	10
6	AF1938-3	.	.	.	.	.	.	.	.	.	.
7	Atlantic	6	5	3	5	5	1	0	0	0	0
8	B0766-3	7	5	2	6	7	0	0	0	0	0
9	B1425-9	7	6	2	5	5	0	0	0	0	0
10	B1829-5	7	6	2	8	7	0	0	0	0	0
11	B1871-1	7	6	2	7	7	0	0	0	0	0
12	Chieftain	2	7	4	5	5	0	0	0	0	0
13	CO86218-2	2	8	2	7	7	0	0	0	0	0
14	Dark Red Norland	2	6	3	4	6	0	0	0	0	0
15	Eva (NY103)	7	5	2	7	8	0	0	0	0	0
16	Katahdin	7	7	3	4	5	3	0	0	0	30
17	Kennebec	6	7	2	6	3	2	0	0	0	20
18	Keuka Gold (NY101)	7	6	2	5	6	0	0	0	0	0
19	NY102	7	6	2	5	5	0	0	0	0	0
20	NY112	5	5	2	6	6	0	0	0	0	0
21	NY115	7	6	2	7	7	0	0	0	0	0
22	R17-7	7	6	3	6	5	0	0	0	0	0
23	Russet Burbank	6	3	6	5	1	0	0	0	0	0
24	Snowden	7	5	2	4	5	2	0	0	0	20
25	Superior	6	6	3	5	3	0	0	0	0	0
26	W1242	7	6	3	6	6	5	0	0	0	50
27	W1313	7	5	2	8	6	0	0	0	0	0
28	Yukon Gold	7	7	3	7	6	2	0	0	0	20

¹ See reference table for rating system.

² Number of tubers out of 10 tubers that contain the defect.

Ohio Table 9. Percent stand, maturity, yield, and chip quality for entries grown in the Ohio Single, Double, and Yellow-fleshed Experiments and selected for chipping quality evaluation in 2001. Entries submitted by NE-184 participants.

Entry #	Entry Name	Stand %	Plant Maturity ¹	Total cwt/A	US # 1 cwt/A	US #1 %	B Size cwt/A	B Size %	Cull cwt/A	Cull %	Specific Gravity	Chip Color ²	Blister ³ %	Agtron ⁴
<u>Single Observation</u>														
14	AF2220-3	73	3	125	90	72	12	10	23	18	1.076	2	0	54
36	NY124(514-27)	83	7	347	165	48	13	4	168	48	1.076	2	0	49
39	T11-2	53	7	258	211	82	11	4	36	14	1.064	3	20	48
41	T27-21	83	5	250	164	66	32	13	54	22	1.075	3	10	53
42	T28-1	73	5	182	142	78	21	12	20	11	1.067	2	0	57
44	U47-21	50	7	191	126	66	23	12	42	22	1.080	2	0	57
47	U109-6	67	7	267	194	73	11	4	62	23	1.078	2	0	64
<hr/>														
<u>Double Observation</u>														
11	B1927-14	56	5	299	233	78	28	9	38	13	1.072	2	0	60
14	B1964-4	60	3	128	74	58	17	13	36	28	1.064	4	0	41
15	Langlade	83	7	350	222	63	39	11	88	25	1.070	2	0	65
<hr/>														
<u>Yellow-Fleshed</u>														
2	B1801-6	82	6	348	222	64	17	5	109	31	1.069	3	0	56
3	B1806-8	65	3	193	136	70	27	14	29	15	1.067	2	0	55
4	B1816-5	75	5	223	178	80	26	12	18	8	1.069	3	0	41
7	B1952-2	58	4	143	111	78	16	11	16	11	1.063	2	20	59
10	B2024-9	62	7	306	189	62	68	22	49	16	1.070	4	10	35
12	B2029-1	82	3	221	153	69	35	16	32	14	1.061	4	0	42
14	Keuka Gold (NY101)	77	9	362	282	78	34	9	46	13	1.073	2	0	57
18	T15-1	67	7	268	140	52	109	41	19	7	1.067	3	0	54
19	T17-2	72	3	160	86	54	49	31	26	16	<1.060	5	10	24
<hr/>														
<u>Average</u>														
		70	5	235	159	68	46	19	29	13	1.067	3	5	46

¹ See reference table for rating system.

² SFA Standard (1=light, 5=dark)

³ Percentage of chips that developed blisters greater than 20 mm in diameter during the frying process.

⁴ Agtron 350

Ohio Table 10. Tuber characteristics for entries grown in the Ohio Single, Double, and Yellow-fleshed Experiments and selected for chipping quality evaluation in 2001. Entries submitted by NE-184 participants.

Entry #	Entry Name	----- External ¹ -----				----- Internal ² -----				%
		Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance	Hollow Heart	Vascular Discoloration	Internal Necrosis	
<u>Single Observation</u>										
3	AF2207-4	0	0	0	0	2	0	2	0	20
10	AF2215-5	0	0	0	0	1	0	1	0	10
14	AF2220-3	0	0	0	0	0	0	0	0	0
35	B2027-2	0	0	0	0	0	0	0	0	0
36	NY124(514-27)	0	0	0	0	0	0	0	0	0
39	T11-2	0	0	0	0	0	0	0	0	0
41	T27-21	0	0	0	0	1	0	1	0	10
42	T28-1	0	0	0	0	0	0	0	0	0
44	U47-21	4	0	0	0	0	4	0	0	40
47	U109-6	0	0	0	0	0	0	0	0	1
<u>Double Observation</u>										
11	B1927-14	7	7	2	7	7	0	0	0	0
14	B1964-4	7	6	3	7	7	0	0	0	0
15	Langlade	7	7	3	7	5	0	0	0	0
<u>Yellow-Fleshed</u>										
2	B1801-6	7	6	3	9	7	0	0	0	0
3	B1806-8	7	7	2	7	5	2	0	0	20
4	B1816-5	1	6	3	6	6	0	0	0	0
7	B1952-2	1	7	3	7	7	0	0	0	0
10	B2024-9	7	8	5	9	7	0	0	0	0
12	B2029-1	7	7	3	5	6	0	0	0	0
14	Keuka Gold (NY101)	7	5	3	5	5	0	0	0	0
18	T15-1	2	7	2	8	7	0	0	0	0
19	T17-2	2	7	3	8	7	0	0	0	0

¹ See reference table for rating system.

² Number of tubers out of 10 tubers that contain the defect.

Ohio Table 11. Percent stand, maturity, and yield information for entries grown in the Ohio Double (D), Single (S) or Yellow-fleshed (Y) Experiments but not selected for chipping quality evaluation in 2001. Entries submitted by NE-184 participants.

* NUE and HI										* NUE and HI									
Entry #	Entry Name	% Stand	Plant Maturity	Total cwt/A ¹	# tubers	Total tuber fwt (kg)	Avg tuber wt (g)	Entry #	Entry Name	% Stand	Plant Maturity	Total cwt/A ¹	# tubers	Total tuber fwt (kg)	Avg tuber wt (g)				
D 1	AF2082-12	80	3					S 20	AF2260-5	20	9								
D 2	AF2115-1	84	6		36	5	129.44	S 21	AF2260-7	87	5								
D 3	AF2138-1	75	3					S 22	AF2262-1	93	5								
D 4	AF2151-1	75	4		18	4	200.00	S 23	AF2269-8	37	9								
D 5	ARS-W96-40022-5	87	5					S 24	ARS-W97-4290-1	47	9								
D 6	ARS-W96-4662-2	68	4					S 25	ARS-W97-4295-1	67	7								
D 7	B1826-1	64	9		17	2	129.41	S 26	B1973-10	30	7								
D 8	B1870-3	85	3					S 27	B1976-4	93	7								
D 9	B1880-6	85	5					S 28	B1976-6	87	7								
D 10	B1919-9	47	4					S 29	B1979-10	87	3								
D 12	B1933-3	75	5		26	2	87.19	S 30	B1980-2	37	7								
D 13	B1957-1	50	5					S 31	B2001-186	77	5								
D 16	Ware's Pride	87	7					S 32	B2003-133	73	9								
S 1	AF2206-7	47	5		14	2.04	145.71	S 33	B2003-140	73	3								
S 2	AF2206-9	50	7					S 34	B2021-15	53	7								
S 3	AF2207-4	77	7	288				S 35	B2027-2	57	7	246							
S 4	AF2211-6	67	5					S 37	T3-5	63	7								
S 5	AF2211-9	57	5					S 38	T3-9	33	5								
S 6	AF2211-14	70	3					S 40	T15-3	57	5								
S 7	AF2215-1	63	5					S 43	U47-2	10	7								
S 8	AF2215-3	50	7					S 45	U75-1	63	7								
S 9	AF2215-4	80	3					S 46	U106-26	50	7								
S 10	AF2215-5	63	7	180				Y 1	B1752-5	62	2								
S 11	AF2217-3	53	3					Y 5	B1950-8	70	5								
S 12	AF2219-1	73	3					Y 6	B1951-5	47	6								
S 13	AF2220-1	60	7					Y 8	B2021-3	80	8								
S 15	AF2220-7	70	7					Y 9	B2021-12	80	5								
S 16	AF2222-2	47	5					Y 11	B2024-10	70	9								
S 17	AF2222-4	53	3					Y 13	Ilona	78	6								
S 18	AF2230-2	77	7		16	1.76	110.00	Y 15	MSG274-3	52	7								
S 19	AF2230-5	77	7					Y 16	NY125 (S28-2)	79	7								
								Y 17	T2-2	62	8								

¹ Entries lacking yield data were not harvested.

* Indicates 3 plants/row were removed at vegetative maturity (prior to tuber maturity) in order to estimate crop nutrient use efficiency (NUE) and harvest index (HI).

OREGON

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INTRODUCTION

This report includes summary performance data for entries in the Oregon Statewide Trial at four eastern Oregon locations and for selected trials in the Willamette Valley of western Oregon. Results of screening trials for foliar and tuber resistance to late blight are also included in part. Additional varietal information is available from the various authors.

Oregon emphasizes long russets for frozen processing, but an increasing percentage of the overall effort is devoted to fresh market and specialty niche varieties. Breeding and screening for resistance to PVY, PLRV and late blight are also increasing in importance.

Oregon evaluated more than 80,000 single-hills at Powell Butte in 2001. Some 80,000 Oregon "B" and "C" tuberlings were also planted as single hills by cooperators in Texas, North Dakota and Minnesota. Crop Science cooperators produced tubers of approximately 80,000 progeny in Corvallis greenhouses in 2001 for 2002 plantings.

Oregon initiated a new breeding effort to integrate potato virus Y (PVY) and potato leaf roll virus (PLRV) resistance into commercial varieties in 1999. Parents were initially provided by ARS cooperators at Aberdeen, Idaho and Prosser, Washington. Subsequently, Oregon selections are increasingly used as parents.

Some 200 – 500 selections from Tri-state and other breeding programs are annually evaluated for foliar and tuber resistance to late blight in

field plantings at Corvallis. Late blight trials are planted late, grown without fungicides, inoculated at least twice in late August and irrigated to excess in August and September to stimulate disease development.

Foliar and tuber late blight infection have been poorly correlated in Corvallis trials. For example, a number of selections from Colorado and other breeding programs have shown little if any foliar resistance to late blight but strong tuber resistance. Umatilla Russet is highly resistant to tuber infection at Corvallis but shows very little foliar resistance. Reasons for these discrepancies are not clear. Relative resistance rankings among entries vary from year to year. Therefore, single-season results should be considered indicative and not definitive.

RECENT AND PENDING RELEASES

Oregon released three varieties in 2000.

Klamath Russet, tested as AO85165-1, (<http://www.css.orst.edu/potatoes/klamath.pdf>) is a high-yielding, attractive long russet intended for fresh market.

NDO2438-6R, an attractive red-skinned clone with good yields and grade-out, good color from storage and a high percentage of small tubers, was released as **Winema** (<http://www.css.orst.edu/potatoes/winema.pdf>).

Another attractive red, NDO2686-6R, was released as **Mazama** (<http://www.css.orst.edu/potatoes/mazama.pdf>). Mazama tubers tend to be slightly smoother, more oblong and slightly smaller than those of Winema.

Oregon selection AO87277-6, a russeted multi-purpose clone with excellent fry processing quality, will be released as **Wallowa Russet** (<http://www.css.orst.edu/potatoes/AO87277-6.pdf>) early in 2002. Wallowa Russet produces good yields of smooth tubers with excellent solids and fry color. It has performed extremely well in the Willamette Valley and may be better adapted to fine textured soils than most commercial russets. Wallowa Russet has relatively short storage dormancy and will require sprout inhibition for late winter storage. It has shown susceptibility to shatter bruise when harvested cold and wet.

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⁵Malheur Experiment Station (MES), Ontario.

Two additional Oregon selections are scheduled for release in 2003 in cooperation with the Tri-State group and other partners. The final release date will depend on seed availability. The late maturing, round white chipper AO91812-1 will be released as **Willamette** (<http://www.css.orst.edu/potatoes/Willamette.pdf>).

NDO4300-1R, a smooth, red-skinned clone, is scheduled for release as **Modoc** (<http://www.css.orst.edu/potatoes/Modoc.pdf>) in cooperation with Washington, Idaho, North Dakota and California.

PROCEDURES

Standard commercially acceptable greenhouse and field management practices were used in all instances except for late blight screening trials (see below).

Willamette Valley Yield Trials:

Red, russet, chipping and specialty variety trials were planted at Corvallis on May 15 in randomized complete block designs with 4 reps in a variable soil ranging from silt loam to sandy loam. Plots were single rows 25 feet long on 34-inch centers. Seed pieces were spaced approximately 9.5 inches apart within rows. Plantings were amended with 500 lbs/acre of 15-15-15 broadcasted and incorporated before planting followed by an additional 500 lbs banded at planting. Weeds were controlled with Matrix (rimsulfuron; 0.016lb ai/A) and Prowl (pendimethalin; 1 lb ai/A) post emergence. Insects were controlled satisfactorily with Admire and Monitor according to label directions. Irrigation water was applied, as needed, using solid-set sprinklers; precipitation was negligible, as usual. Vines were killed with Diquat on September 10 and tubers were harvested on September 17.

Oregon State-wide Yield Trials:

Twenty-one advanced clones were evaluated for yield and various other characteristics in coordinated Oregon Statewide (4-rep) Trials at four branch stations (Hermiston, Klamath Falls, Madras, Ontario) in 2001. Trials were planted, managed and harvested according to local

production practices.

Late Blight Screening:

Fungicides were omitted from late blight trials to encourage disease development. Late blight plantings were inoculated twice with the US-8 strain in late August to increase disease pressure and uniformity. Spores were applied as a water suspension using a hand-held pump sprayer. Inoculum was deposited throughout the plantings on a 30 x 30-ft. grid. Some 400 clones were screened for foliar and tuber resistance under severe late blight pressure in 2001

Trials were planted on June 15 and 16 in order to insure continued foliar health into late season when blight pressure typically peaks in the Willamette Valley. Trials included 53 advanced tri-state/western regional selections and named varieties in 4-rep (15 hills/plot) trials; 40 clones in the national germplasm late blight screening trial in collaboration with USDA; 49 clones in 2-rep, 15-hills plots; and 39 clones in ten-hill plots. Some 436 early selections were evaluated in 4-hill, single rep plantings.

ARS and university cooperators in Idaho, Colorado, Texas and elsewhere provided entries for the 15-hill trial. Materials for the 4-hill selections and 15-hill replication trial were provided by ARS workers at Aberdeen, Idaho and also included Oregon selections from previous years. Ten-hill selections were provided by Colorado and Idaho. National Late Blight Trial entries were provided by Dr. Kathleen Haynes of the USDA-ARS Vegetable Lab in Beltsville, Maryland.

Except for weed control, all pesticides were omitted in blight trials. Additional irrigation was applied in late August to stimulate disease development. Plants were also inoculated August 17, 20 and 24 by spraying water-based spore suspensions on a 30 x 30-foot grid on spreader rows throughout the field(s). Foliar symptoms were evaluated during the season; tubers were lifted on October 10-11 and samples were stored in humid condition at room temperature and evaluated on October 22-23.

RESULTS AND DISCUSSION

As noted, results of Corvallis (Willamette Valley) and Oregon Statewide Trials are

reported here; additional information on early-selection and Oregon local trials are available from the authors. Images and descriptions of named varieties and western selections nearing release are available online at <http://www.css.orst.edu/potatoes/variety.htm> under "New and Pending PNW Releases."

Summary performance data for most advanced western selections (Oregon Statewide, Tri-State and Western Regional Trials) can be found at the following websites:

- <http://www.css.orst.edu/potatoes/variety.htm> -- Potato Information Exchange, performance information, varietal descriptions, images.
- <http://www.css.orst.edu/coarc/database.htm> -- Central Oregon Variety Database, performance data by variety x location x year.
- <http://www.ars-grin.gov/ars/PacWest/Aberdeen/spudtrials.htm> -- Tri-state and Western Regional Trial results for recent years.
- <http://www.wsu.edu/~fullern/index.html> -- WSU Post-harvest Trial results for Tri-state Trial entries.

VARIETAL EVALUATION

Approximately 2% of 70,000 Powell Butte single hills were visually selected for further evaluation at the four cooperating branch stations (Hermiston, Klamath Falls, Madras and Ontario) in 2001.

Twelve of 85 clones included in the 2000 Preliminary Yield Trial were advanced to the 2001 Statewide Trial. As usual, these selections will form the backbone of the Oregon varietal development program, which involves cooperators at four branch stations and the Department of Crop and Soil Science.

Oregon Statewide Trial

Four (AO87277-6, AO91812-1, AO92017-6, and AO94110-203) of 14 numbered selections in the Oregon Statewide Trial (Table 1) were retained for further evaluation in Oregon, Tri-State and Western Regional trials. All others

were discarded for various reasons.

AO87277-6 is scheduled for release as **Wallowa Russet** in 2002. Wallowa produces oblong, smooth russet tubers with excellent solids and fry colors (Table 1). It has shown no obvious internal or external disorders in Oregon trials. However, it has shown some susceptibility to hollow heart in North Dakota tests. Wallowa has relatively short storage dormancy and will require sprout suppression from early winter onward.

AO91812-1, a round white chipper, will probably be released as **Willamette** in either 2001 or 2002. It has good solids and typically yields well compared to standard chipping cultivars. Tubers have a pronounced folded bud end in some locations. Seed of AO91812-1 is being increased for national trials and release to seed growers.

AO92017-6 is a late-maturing medium russet which usually produces good yields of attractive tubers with good processing potential. It has shown a mild tendency for sugar ends but generally less so than Russet Burbank or Shepody.

AO94110-203 produces excellent yields and grade, but the tubers tend to be somewhat rounder than desirable for frozen fry production. Fry color is only marginally better than Russet Burbank and darker than Ranger Russet.

Corvallis Russet Trial

Eighteen advanced selections were compared to Russet Burbank, Ranger Russet and Russet Norkotah on soils ranging from silt loam to sandy loam at Corvallis (Tables 2 and 3). The first 17 entries were also tested in the 2001 Western Regional Trial at 6 sites. Virus infection levels were higher than in previous years; A90586-11 led all entries with 56.1% visible symptoms.

AO87277-6 (**Wallowa Russet**) ranked first in total yield and overall quality followed by AO92017-6 and AC87079-3. AO94110-203 produced highest marketable yields followed by AC87079-3 and AO87277-6. AO94110-203

produced attractive russet tubers with the highest gravities of all entries.

Corvallis Red Trials

Nineteen red selections and two commercial varieties (Red LaSoda and Dark Red Norland) were compared under typical Willamette Valley conditions (Tables 4 and 5). The first eleven clones were included in 2001 Western Regional Trials. AO96747-1 and NDTX4271-5R produced the highest total yields while AO96747-1, AO91852-1 and NDO4588-5 produced the highest marketable yields, respectively. AO96747-1 tubers had bright red skins and tended to be small, possibly because of high levels of virus. Virus infection levels averaged 26% across all varieties.

Yukon Gold and TX1523-1Ru/Y were included in the red trials as specialty selections. Yukon Gold is a round, widely-grown fresh market variety with attractive yellow flesh. TX1523-1RU/Y and TX1674 W/Y produced tubers with attractive yellow flesh color as well.

Corvallis Chipping Trials

Four chipping selections were compared to Atlantic and Chipeta at Corvallis (Tables 6, 7, 8). A90490-1, A91790-13, and NDTX4930-5W led all entries in total and marketable yields, respectively.

A91790-13 appeared to be a very good chipping selection. It yielded moderately well, had high solids and produced relatively light-colored chips from both 40 and 45F storage in November (Table 7). AC89653-3 buds started peeping after only one month at 50°F. NDXTX4930-5W produced light chips from 40F storage compared to Atlantic and Chipeta. After two months of storage at 40 and 45F., A91790-13 and NDTX4930-5W produced lighter-colored chips than other entries. A91790-13 showed 100% visible virus symptoms and led all entries in that category.

LATE BLIGHT RESISTANCE SCREENING

Varietal response to late blight varies somewhat from year to year depending on timing, and perhaps other factors. It is best, therefore, to base resistance estimates on multi-year trials. The

Corvallis screening trials are ongoing and readings for any of the past several years are available from the authors. We have typically found Ranger Russet, Shepody and Russet Norkotah (and strains) to be quite susceptible to tuber decay, for example. Conversely, Umatilla Russet shows good tuber resistance as does Russet Legend and Gem Russet. If the late blight epidemic occurs late, early-maturing varieties with very susceptible foliage can die so rapidly that tubers appear to be protected from infection; it is also possible that tuber skin maturity influences infection levels. Consequently, these varieties may be erroneously classed as tuber-resistant in a given season. Of all commercial varieties and advanced selections, only A90586-11 has consistently shown high levels of resistance to both foliar and tuber infection.

Advanced Selections and Commercial Varieties

The 2001 Willamette Valley late blight epidemic killed the foliage of all 52 advanced selections and commercial varieties in replicated trials except for A90586-11. Consequently, tuber infection levels were typically high but some early-maturing varieties apparently escaped tuber infection (Table 9) because of the absence of foliar spores on associated senescent vines. While foliar blight infection eventually reached 100% for virtually all entries, tuber infection percentages ranged from 0 to 93%, confirming that foliar infection and tuber infection are not necessarily closely related. Tuber infection levels probably depend on a number of factors including: 1) tuber set depth; 2) relative spore loads from infected vines, as influenced by natural senescence, and clonal resistance; 3) the relative maturity (skin set) of tubers at the time of exposure; and 4) metabolic/genetic resistance to tuber decay.

National Late Blight Germplasm Evaluation Trial

In cooperation with Dr. K. Haynes of the ARS/USDA Vegetable Laboratory in Beltsville, Maryland, 40 advanced clones and commercial varieties were evaluated in replicated trials in Corvallis for late blight foliar and tuber infection. High levels of resistance in foliage and tubers were observed for clones such as LBR10, B0692-4, AWN86514-2 and B0718-3 (Table10).

Fifteen Hill, 2 Replicate Entries

Fifty-two advanced clones provided by ARS/USDA cooperators at Prosser, Washington and Aberdeen, Idaho were screened for late blight foliar and tuber resistance. Severe late blight pressure clearly exposed several highly resistant entries (Table 11). EGAO9703-4, EGAO9704-1, AWN86514-2, AO96863-8, AO96763-7, A96764-19 showed relatively high resistance in both foliage and tubers. PI58833-1 also showed good foliar resistance but tubers were relatively susceptible with 30% infection. However, most resistant entries were also extremely vigorous and late maturing. Resistant clones showing acceptably early maturity and good tuber type will be used as parents in Tri-state breeding programs.

Ten Hill Selections

Thirty-nine selections from Idaho ARS/USDA and Colorado breeding programs were evaluated for late blight. Almost all Colorado selections were dead due to late blight. Clones such as PI58333-1, BOL750660, A98064-32 showed good level of resistance to late blight infection (Table 12).

Four Hill Selections

Survivors of single hill selections, 420 clones from Idaho ARS/USDA, were evaluated for late blight in 4-hill plots. Entries were evaluated for foliar infection on September 21 and October 8 and for tuber infection on October 12 (Table 13). Disease pressure was severe enough to provide effective resistance screening. Based on foliar and tuber resistance about 36 clones showed high levels of resistance to late blight infection. Foliar ratings ranged from 1 (no visible disease) to 9 (100% infection) and tuber infection from 0 to 100%. As with the preceding 15-hill clones, selections showing good resistance and tuber type will be used as parents in PNW breeding programs aimed at developing resistant new varieties.

Oregon Table 1. Statewide potato variety trial, 2001¹.

Selection	Yield		No.1 %	Tuber Size, oz.	L/W Ratio	Spec. Gravity	Fry Color USDA	Sugar Ends %	HH/ BC %	Black Spot %	Vine Mat. 5=Late
	Total cwt/a	No.1 cwt/a									
R.Burbank	548	339	62	6.53	1.83	1.084	0.97	14	8	5	3.8
Ranger	569	408	72	8.79	1.93	1.089	0.53	3	0	5	3.7
Shepody	578	398	69	11.02	1.59	1.083	0.86	24	4	4	2.6
Norkotah	493	417	85	7.56	1.82	1.072	1.33	9	4	2	2.5
Umatilla	582	419	72	7.73	1.82	1.089	0.57	1	1	10	3.3
AO92017-6	635	515	81	8.40	1.84	1.091	0.87	3	0	5	3.8
AO94110-203	595	494	83	6.10	1.52	1.096	0.46	0	1	3	3.7
AO92023-3	614	465	76	9.28	1.74	1.077	1.41	4	1	5	3.4
AO92019-4	420	365	87	6.55	1.66	1.078	1.01	18	0	4	2.2
AO94004-3	465	384	83	5.95	1.61	1.090	0.50	0	3	2	3.0
AO96060-1	539	452	84	6.78	1.66	1.086	0.96	0	2	5	3.1
AO96065-7	510	408	80	5.84	1.61	1.096	0.50	1	6	16	3.5
AO96160-3	590	525	89	6.73	1.66	1.094	0.25	8	0	8	3.8
AO96164-1	637	536	84	9.72	1.70	1.087	0.57	0	0	4	3.8
AO96165-2	614	513	83	6.95	1.67	1.090	0.59	2	0	5	3.3
AO96165-9	540	426	79	6.17	1.80	1.087	1.13	14	0	11	3.2
AO96176-3	604	513	85	7.77	1.78	1.085	0.19	0	2	5	3.1
AO96177-6	606	523	86	11.25	1.86	1.094	0.00	6	1	10	4.2
AO96262-1	558	441	79	7.52	1.79	1.088	0.44	3	0	13	3.2
AO96272-1	628	473	75	7.59	1.87	1.090	0.56	0	0	4	3.5

¹Averaged values for replicated trials at Hermiston, Klamath Falls, Madras and Ontario

Oregon Table 2. Yield, grade, size distribution, and specific gravities of 21 russet potato selections and varieties at Corvallis, Oregon 2001.

Entry	Total Cwt/a	U.S. No. 1 (cwt/a)				Yield (cwt/a)		% U.S. No. 1	Oz ¹ /Tub.	Sp. Grav. ²
		Total	4-6 oz	6-10 oz	>10 oz	<4 oz	2's + Culls			
R. BURBANK	496	200	39	104	57	100	196	39	5.7	1.081
RANGER R	478	288	22	120	147	61	129	58	7.4	1.093
R. NORKOTAH	288	180	25	100	54	79	30	62	6.7	1.068
SHEPODY	373	267	26	81	160	34	72	71	8.6	1.072
A8893-1	514	380	45	156	178	64	71	74	7.3	1.082
A9014-2	501	391	29	140	223	58	52	77	9.0	1.085
A9045-7	529	407	18	156	233	38	84	77	8.1	1.092
A90586-11	541	385	27	155	204	63	93	71	7.2	1.089
AC87079-3	559	437	25	143	269	61	61	79	7.8	1.090
AC87138-4	523	396	41	159	196	57	70	76	7.0	1.086
AC89536-5	478	274	51	143	80	130	75	57	4.8	1.085
AC91014-2	407	295	44	159	92	79	33	72	6.7	1.091
AO92017-6	569	372	16	83	274	49	148	66	8.7	1.080
ATX9202-3RU	553	330	29	146	155	49	168	61	9.1	1.083
TXNS102	409	288	38	123	126	74	48	70	5.9	1.072
TXNS296	451	309	16	168	117	78	64	68	7.1	1.076
Stampede Russet	462	309	16	121	172	52	102	65	7.4	1.071
Klamath Russet	543	427	29	159	239	49	67	79	7.7	1.081
AO87277-6	572	427	14	177	235	61	84	75	7.8	1.083
AO92023-3	306	172	36	79	57	47	87	56	5.1	1.069
AO94110-203	551	469	62	166	241	60	22	85	8.1	1.100
Mean	485	331	30	131	169	64	90	68	7.3	1.082
CV (%)	15	21	41	23	35	33	42	13	23.4	0.602
LSD (0.05)	100	98	17	43	84	30	53	13	2.4	0.009

¹Total weight per plot/total number of tubers per plot

²Air/water method

Oregon Table 3. External and internal tuber defects and percent virus infection of 21 russet selections and commercial varieties at Corvallis, Oregon 2001.

Entry	External Defects (%) ¹			Internal Defects (%) ²				%Virus
	K	GC	G	HH	BC	VD	IBS	
R. BURBANK	9.7	6.8	0.5	5.0	0.0	37.5	17.5	12.2
RANGER R	4.1	11.6	0.3	2.5	0.0	35.0	7.5	16.7
R. NORKOTAH	2.7	0.9	0.2	7.5	0.0	32.5	20.0	24.3
SHEPODY	3.3	5.7	1.5	5.0	2.5	37.5	10.0	16.0
A8893-1	1.8	4.5	0.7	22.5	0.0	15.0	15.0	13.0
A9014-2	2.7	1.6	1.1	12.5	0.0	17.5	10.0	26.5
A9045-7	2.8	7.5	0.5	0.0	2.5	5.0	15.0	27.3
A90586-11	5.7	1.4	1.1	7.5	0.0	20.0	2.5	56.1
AC87079-3	3.3	0.8	0.5	52.5	0.0	7.5	5.0	14.4
AC87138-4	2.2	3.3	0.6	32.5	0.0	15.0	7.5	27.3
AC89536-5	0.9	2.7	0.8	7.5	0.0	10.0	0.0	18.2
AC91014-2	1.3	0.5	0.3	47.5	0.0	0.0	12.5	23.5
AO92017-6	14.8	3.4	2.2	0.0	0.0	25.0	27.5	23.5
ATX9202-3RU	6.4	13.1	0.9	5.0	0.0	30.0	0.0	20.5
TXNS102	1.4	2.3	0.0	7.5	0.0	30.0	15.0	17.4
TXNS296	4.0	2.3	0.1	22.5	0.0	15.0	12.5	28.0
Stampede Russet	1.5	11.7	0.5	20.0	2.5	22.5	10.0	35.6
Klamath Russet	2.3	3.0	0.9	27.5	0.0	22.5	5.0	22.0
AO87277-6	3.7	3.9	0.2	7.5	15.0	7.5	0.0	14.4
AO92023-3	1.1	10.1	0.2	0.0	0.0	52.5	22.5	27.3
AO94110-203	0.8	0.5	0.0	20.0	0.0	7.5	0.0	15.2
Mean	4.3	4.6	0.7	13.7	1.0	20.4	9.9	22.9
LSD	3.8	4.0	1.3	19.9	4.1	29.9	19.6	19.3

¹ K = Knobs, GC = Growth Cracks, G = Sunburn.

² HH = Hollow Heart, VD = Vascular Discoloration BC = Brown center, IBS = Internal Brown Spot. Figures based on 10 U.S. No. 1 tubers per replication.

Oregon Table 4. Yield, grade, size distribution, and specific gravities of 21 red clones and specialty selections at Corvallis, Oregon 2001.

Entry	Total cwt/a	U.S. No. 1 (cwt/a)				Yield (cwt/a)		% U.S. No. 1	Oz ¹ / Tub.	Sp. Grav. ²
		Total	4-6 oz	6-10 oz	>10 oz	<4 oz	2's + Culls			
Dk. R. Norland	478	348	45	166	137	38	92	73	8.0	1.064
Red LaSoda	404	258	34	103	121	27	119	64	8.8	1.067
YUKON GOLD	379	345	32	145	167	15	19	91	7.9	1.090
A92584-3BB	397	168	93	61	14	172	57	42	3.7	1.076
A92653-6R	453	380	57	184	139	41	32	84	6.3	1.092
A92657-1R	448	389	38	185	166	29	30	87	8.3	1.072
NDC5281-2	387	268	63	163	42	73	46	69	6.8	1.074
NDO4323-2	369	230	54	115	61	48	90	63	7.1	1.075
NDTX4271-5R	484	371	84	171	117	42	71	77	6.6	1.068
TX1523-1RUY	336	292	50	149	93	30	14	87	6.5	1.081
TX1674-1W/Y	413	326	57	175	94	69	18	79	5.6	1.084
Mazama	411	325	77	159	89	67	20	79	6.7	1.070
Winema	388	287	44	125	118	45	56	74	6.1	1.058
NDO4300-1	428	342	52	180	110	45	40	80	6.0	1.066
AO91852-1	474	401	58	184	160	48	25	85	6.4	1.062
AO91854-1	392	280	39	131	111	42	70	71	6.5	1.065
AO93487-2	365	288	68	151	69	41	36	79	6.5	1.067
AO96747-1	518	413	98	207	108	70	34	80	5.5	1.072
AO96751-1	448	350	45	144	160	44	55	79	7.5	1.064
NDO4588-5	452	392	49	152	191	29	32	86	6.8	1.064
NDO7130-1	369	233	87	130	16	105	31	62	6.1	1.085
Mean	419	318	58	151	109	53	47	76	6.6	1.072
CV (%)	13	16	37	24	30	25	42	8	19.0	0.529
LSD (0.05)	78	73	31	52	46	19	28	9	1.8	.0008

¹Total weight per plot/total number of tubers per plot

²Air/water method

Oregon Table 5. External and internal tuber defects and percent virus infection of 21 red clones and specialty selections at Corvallis, Oregon 2001.

Variety/Selection	External Defects (%) ¹				Internal Defects (%) ²			% VIRUS
	K	GC	G		HH	VD	BC	
Dk. R. Norland	0.5	10.6	1.2		2.5	22.5	2.5	25.8
Red LaSoda	1.1	16.0	0.3		2.5	12.5	0.0	22.0
YUKON GOLD	0.6	2.1	0.9		5.0	10.0	0.0	25.8
A92584-3BB	0.5	0.4	1.4		0.0	15.0	2.5	25.8
A92653-6R	0.1	1.4	1.3		5.0	35.0	2.5	34.9
A92657-1R	0.5	4.6	0.7		0.0	7.5	0.0	30.3
NDC5281-2	0.7	5.6	1.7		2.5	5.0	0.0	12.9
NDO4323-2	0.4	11.9	0.0		2.5	17.5	0.0	25.0
NDTX4271-5R	0.2	7.8	0.5		5.0	7.5	0.0	29.5
TX1523-1RUY	0.7	0.7	0.4		2.5	12.5	0.0	12.9
TX1674-1W/Y	0.4	0.2	1.3		0.0	12.5	0.0	15.2
Mazama	0.3	0.7	0.0		2.5	25.0	0.0	19.7
Winema	1.5	2.8	0.4		5.0	20.0	2.5	39.4
NDO4300-1	0.1	3.4	0.7		2.5	20.0	2.5	38.6
AO91852-1	0.1	1.3	0.6		2.5	25.0	0.0	38.6
AO91854-1	0.3	8.9	0.8		2.5	20.0	2.5	25.0
AO93487-2	0.0	3.4	0.0		0.0	17.5	0.0	16.7
AO96747-1	0.7	0.8	0.7		0.0	30.0	2.5	41.7
AO96751-1	0.6	5.2	0.7		0.0	15.0	0.0	28.0
NDO4588-5	0.7	1.9	0.0		2.5	17.5	0.0	22.0
NDO7130-1	0.2	1.2	0.0		0.0	2.5	0.0	31.8
Mean	0.5	4.3	0.6		2.1	16.7	0.8	26.7
LSD (0.05)	0.7	4.1	1.2		NS	18.9	NS	23.0

¹ K = Knobs, GC = Growth Cracks, G = Sunburn.

² HH = Hollow Heart, VD = Vascular Discoloration, BC = Brown center.

Figures based on 10 U.S. No 1 tubers per replication.

Oregon Table 6. Yield, grade, size distribution and specific gravities of six chipping selections and varieties at Corvallis, Oregon 2001.

Entry	Total Cwt/A	Yield U.S. No. 1 (cwt/a)				Yield (cwt/a)		% U.S. No. 1	Oz/ Tuber ¹	Sp. Grav. ²
		Total	4-6 oz	6-10 oz	>10 oz	<4 oz	2's + Culls			
Atlantic	421	354	68	117	169	35	33	84	5.9	1.081
Chipeta	576	407	34	126	246	22	147	72	7.6	1.078
A90490-1	732	596	55	173	368	27	109	81	8.4	1.076
A91790-13	628	526	117	252	157	60	42	84	6.6	1.081
NDTX4930-5W	581	448	57	149	242	39	95	77	6.8	1.085
AO91812-1	532	389	64	174	151	43	99	73	5.6	1.080
Mean	578	453	66	165	222	38	87	78	6.8	1.080
CV (%)	13	14	28	20	24	21	45	8	19.0	0.468
LSD (0.05)	112	95	28	49	79	12	59	9	2.0	0.008

¹ Total Weight/Total number of tubers

² Air/water method

Oregon Table 7. External and internal tuber defects and percent virus infection of six chipping selections at Corvallis, Oregon 2001.

Variety/Selection	External Defects (%) ¹			Internal Defects (%) ²		% VIRUS Infection
	K	GC	G	HH	VD	
Atlantic	0.0	3.3	1.8	10.0	7.5	26
Chipeta	1.0	11.6	4.4	12.5	15.0	27
A90490-1	1.1	3.6	6.2	12.5	17.5	49
A91790-13	0.1	0.5	3.6	5.0	12.5	100
NDTX4930-5W	0.1	4.7	5.1	12.5	15.0	23
AO91812-1	0.2	9.7	3.6	10.0	30.0	24
Mean	0.4	5.5	4.1	10.4	16.3	41
LSD (0.05)	0.6	4.6	4.0	21.0	18.3	29

¹ K = Knobs, GC = Growth Cracks, G = Sunburn.

² HH = Hollow Heart, Figures based on 10 U.S. No 1 tubers per replication.

Oregon Table 8. Specific gravity, fry color and sprouting characteristics of six chipping selections and varieties at Corvallis, Oregon 2001.

Entry	Sp. Grav. ¹	Agtron Chip Color ^{2,3}				
		9/26	10/26		11/26	
			40 F	45 F	40 F	45 F
Atlantic	1.081	39	23	39	21	35
Chipeta	1.078	41	24	34	20	33
A90490-1	1.076	37	21	35	21	32
A91790-13	1.081	44	35	41	30	36
NDTX4930-5W	1.085	43	31	37	27	36
AO91812-1	1.080	38	23	37	23	33
Mean	1.080	40	26	37	24	34
LSD (0.05)	0.008	8	4	5	5	3

¹ Air/water method

² Agtron reflectance value (red filter), high numbers = light color

³ To determine PC/SFA value use the following formula: PCSFA = (Agtron value x -0.113) + 6.70984

Oregon Table 9. Foliar disease ratings and incidence and severity of tuber infection at harvest for 53 advanced selections and commercial varieties in replicated late blight resistance screening trials at Corvallis, Oregon 2001.

Entry	Fol. Rat. ¹ 9/21	Fol. Rat. ¹ 9/28	%Tub. Inf. ²	Entry	Fol. Rat. ¹ 9/21	Fol. Rat. ¹ 9/28	%Tub. Inf. ²
R. Burbank	5.75	8.0	10.0	Atlantic	7.25	8.5	17.5
Ranger R.	6.25	8.0	80.0	CHIPETA	5.75	6.75	57.5
R. Norkotah	8.0	8.75	50.0	A90490-1	6.0	7.5	27.5
A91814-5	6.75	8.25	92.5	TX1674-1W/Y	7.75	9.0	15.0
A8893-1	7.75	9.0	22.5	NDTX4271-5R	7.5	9.0	45.0
A9014-2	7.0	8.5	22.5	NDO7119-1	8.0	9.0	37.5
A9045-7	5.75	7.25	7.5	A92584-3BB	7.5	9.0	77.5
A90586-11	3.75	4.5	12.5	A91790-13	6.25	8.5	95.0
AC87079-3	5.75	7.25	0.0	NDTX4930-5W	7.25	8.75	60.0
A92030-4	5.5	8.25	40.0	A9230-5	7.5	9.0	25.0
ATX9202-3RU	6.75	8.75	40.0	A9304-3	7.0	8.5	37.5
AC87138-4	6.75	8.25	22.5	A93157-6LS	7.25	8.75	40.0
AC91014-2	7.75	9.0	17.5	A91186-2	7.75	9.0	20.0
AO92017-6	5.5	7.5	52.5	A93116-2	6.75	7.75	10.0
TXNS102	7.0	8.75	60.0	A9305-10	6.75	8.0	37.5
TXNS296	7.25	8.75	37.5	BTX1544- 2W/Y	7.75	9.0	17.5
PA95A11-14	8.25	9.0	27.5	CO92077-2RU	7.5	8.5	17.5
NDC5281-2	8.25	9.0	30.0	AC92009-4RU	7.0	8.0	0.0
AO87277-6	5.5	8.0	20.0	TC1675-1RU	7.25	8.75	525
Dk. R. Norland	8.0	9.0	60.0	CO93037-6R	6.75	8.75	30.0
RED LASODA	8.0	9.0	50.0	CO92027-2R	8.0	9.0	40.0
Yukon Gold	8.0	9.0	50.0	ATX9202	7.25	8.5	35.0
A92657-1R	8.0	9.0	27.5	NDC5372-1R	7.25	8.75	30.0
A92657-6R	7.25	9.0	20.	NDTX4304-1R	7.75	9.0	32.5
NDO4300-1R	8.0	9.0	42.5	AC89536-5	6.75	8.25	17.5
NDO4323-2R	7.25	9.0	20.0	Umatilla R.	5.75	7.75	2.5
TX1523-1RU/Y	7.25	8.75	40.0				

¹Ratings are averages for 4 reps: 1 = no foliar injury; 2 = 1-5%; 3 = 5-10%; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury.

² Percent of late blight infected tubers based on 10 randomly selected tubers.

Oregon Table 10. National Late Blight Germplasm Evaluation Trial, Corvallis, Oregon, 2001.

Entry	Fol. Rat. ¹ 9/21	Fol. Rat. ¹ 9/28	%Tub. Inf. ²	Entry	Fol. Rat. ¹ 9/21	Fol. Rat. ¹ 9/28	%Tub. Inf. ²
A90586-11	5.0	5.8	2.5	LBR3	6.5	8.0	27.5
Keystone Russet	4.5	7.3	27.5	LBR4	6.3	8.5	20.0
Silverton Russet	5.5	7.8	17.5	LBR5	5.5	7.3	42.5
AF1638-5	5.8	7.5	25.0	LBR7	5.8	8.5	5.0
AWN86514-2	4.0	4.8	0.0	LBR8	3.8	5.3	2.5
BO564-8	7.8	9.0	5.0	LBR9	5.0	6.3	0.0
BO692-4	2.8	4.0	0.0	Atlantic	7.0	8.3	10.0
BO766-3	6.5	7.8	20.0	Dk Red Norland	7.5	9.0	20.0
BO767-2	4.0	5.3	0.0	Ranger Russet	7.0	8.0	67.5
BCO894-2	6.8	9.0	5.0	Red LaSoda	7.0	8.8	25.0
CO86218-2	5.0	7.3	17.5	Russet Burbank	6.0	8.3	10.0
Cherry Red	6.3	8.5	32.5	Russet Norkotah	6.8	8.5	25.0
Keuka Gold	6.3	8.0	10.	Shepody	6.5	8.5	40.0
Eva (NY103)	7.3	8.3	12.5	Snowden	6.0	8.0	2.5
W91-945a	5.3	7.0	17.5	Superior	6.8	8.5	22.5
W84-75R	7.3	9.0	15.0	LBRO	2.5	3.8	10.0
W1100R	7.0	8.8	0.0	BO718-3	2.5	4.5	2.5
W870P90	6.3	8.8	2.5	Yukon Gold	8.0	8.8	0.0
LBR1	6.5	8.8	10.0	A79543-4R	6.8	8.8	10.0
LBR2	6.8	8.8	17.5	A8495-1	4.3	7.0	10.0

¹Ratings are averages for 4 reps: 1 = no foliar injury; 2 = 1-5% injury; 3 = 5-10% injury; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury.

² Percent of late blight infected tubers based on 10 randomly selected tubers.

Oregon Table 11. Late blight foliar and tuber infection for 49 advanced selections in 15-hill plots at Corvallis, Oregon, 2001¹.

Entry	Foliage 9/21	Foliage 10/8	%Tuber	Entry	Foliage 9/21	Foliage 10/8	%Tuber
A90521-1	7.5	9.0	0	A97072-46	6.5	9.0	0
A90586-11	4.5	6.0	10	A97072-5	5.0	8.0	0
A95020-25	3.0	6.0	0	A97097-1	5.5	9.0	10
A95051-2	5.5	8.0	0	A97097-4	5.0	9.0	30
A95053-55	5.0	6.5	0	A97097-8	6.5	9.0	30
A9538-119	3.0	9.0	0	A97098-1	5.0	9.0	0
A9554-177	6.0	7.5	0	AO96763-7	5.0	5.5	10
A9564-3	6.5	9.0	10	AO96775-8	5.5	7.5	0
A9583-114	5.5	8.5	0	AO96781-4	4.5	6.0	0
A96764-19	4.0	5.5	10	AO96836-1	4.5	6.5	0
A96766-57	4.5	9.0	10	AO96850-1	4.5	6.5	0
A96858-51	5.0	7.5	60	AO96863-8	5.0	5.5	0
A96938-4	7.5	9.0	30	AO96871-5	6.5	7.0	0
A96940-5	5.5	9.0	10	AO968781-1	4.5	6.0	0
A96949-4	6.5	9.0	50	AO96893-3	4.5	6.0	0
A97004-2	7.5	8.5	30	AWN86514-2	5.0	5.5	0
A97019-2	7.5	9.0	40	EGAO9702-2	4.5	6.0	10
A97045-1	5.5	9.0	10	EGAO9703-4	4.0	4.5	0
A97054-8	7.0	9.0	0	EGAO9704-1	3.0	5.0	0
A97057-51	6.0	9.0	0	NEVSKY	6.5	9.0	0
A97058-3	5.5	7.0	10	PI583331	2.5	5.5	30
A97058-8	6.5	8.5	0	PO97HG3-4	6.5	9.0	10
A97058-9	6.5	9.0	0	PO97HG8-1	5.0	7.0	0
A97065-1	6.5	9.0	0	A97070-51	5.5	8.5	0
A97065-3	7.5	9.0	10				

¹Ratings are averages for 2 reps: 1 = no foliar injury; 2 = 1-5%; 3 = 5-10%; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury.

² Percent of late blight infected tubers based on 10 randomly selected tubers.

Oregon Table 12. Late blight foliar and tuber infection levels for 10-hill plots, Corvallis, Oregon 2001.

Entry	Foliage 9/21	Foliage 9/28	%Tuber Infection	Entry	Foliage 9/21	Foliage 10/8	%Tuber Infection
A98035-13	5	8	0	AC9558-2RU	6	7	0
A98043-1	7	9	20	AC97080-3W	7	9	80
A98039-52	6	8	40	AC97065-3RU	7	7	0
BOL750660	4	4	0	AC97011-1RU	6	9	20
AWN552-7RUS	6	6	0	AC97060-2R	5	6	0
ETB6-21-12	8	9	40	AC97069-6RU	6	8	0
P2-4	7	9	0	AC9558-3RU	6	8	0
AND95017-8	4	6	20	AC97055-2RU	6	9	0
TORRIDON	6	9	0	AC97002-2RU	7	9	0
ETB5-31-2	8	9	40	AC97002-3RU	8	9	0
ETB5-31-3	7	9	20	AC97066-3W	7	9	20
STIRLING	5	6	20	AC97008-3RU	5	8	0
ETB6-21-3	7	9	0	AC96864-1RU	8	9	0
PI583331	4	4	60	AC97070-1W	5	9	0
ETB6-21-5	5	9	80	AC9563-1RU/Y	4	9	0
A98064-43	6	8	0	AC97075-4R	6	8	0
A98035-40	6	8	0	AC97011-2RU	7	9	0
A98064-32	5	5	0	AC97029-22W/Y	8	9	0
AC97008-4RU	6	9	0	AC97070-3RU	6	9	0
AC97070-2RU	7	9	0				

¹Ratings are averages for 2 reps: 1 = no foliar injury; 2 = 1-5%; 3 = 5-10%; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury.

² Percent of late blight infected tubers based on 10 randomly selected tubers.

Oregon Table 13. Late blight foliar and tuber disease levels, 4-hill selections, Corvallis, Oregon 2001¹.

Entry	Foliage 10/8/01	%Tuber inf.	Entry	Foliage 10/8/01	%Tuber inf.	Entry	Foliage 10/8/01	%Tuber inf.
A98043-51	9	40	A98042-55	9	20	A98028-26	9	0
A98046-52	9	80	A98055-5	9	80	A96794-51	9	20
A98047-9	9	40	A98064-51	9	0	A95522-48	9	0
A98043-18	9	80	A98044-51	9	60	A95522-7	9	0
A98047-52	9	80	A98042-56	9	0	A96801-52	9	40
A98043-53	9	60	A98052-37	9	20	A98027-28	5	20
A98047-35	9	50	A98047-29	9	0	A96794-5	5	0
A98041-51	8	0	A98046-51	7	20	A96783-56	8	0
A98042-52	9	0	A98046-57	9	0	A95522-9	9	20
A98046-55	9	0	A98046-59	8	0	A96783-57	9	0
A98047-51	6	0	A98041-53	9	0	A98023-58	9	0
A98047-16	9	0	A98043-54	9	40	A95521-52	8	0
A98043-52	9	40	A98050-52	9	0	A98023-59	9	0
A98049-51	9	20	A98035-2	6	0	A96794-12	5	0
A98035-7	8	0	A98039-31	8	0	A96794-39	9	20
A98035-18	7	0	A98037-42	9	0	A98023-60	9	0
A98037-14	5	20	A98039-49	8	20	A98023-55	9	20
A98035-37	8	0	A98035-45	8	0	A98028-45	8	20
A98035-46	6	0	A98035-21	8	0	A96783-34	9	20
A98035-42	7	0	A98039-40	5	0	A98023-56	9	0
A98037-49	8	0	A98035-19	8	0	A96783-52	9	80
A98035-39	9	0	A98035-52	9	0	A96794-4	9	0
A98035-6	9	0	A98035-47	9	0	A95522-32	5	0
A98038-51	9	100	A98039-15	3	0	A98059-51	9	0
A98064-42	9	0	A95522-49	9	0	A98055-51	9	0
A98057-8	9	0	A98041-56	9	0	A98019-54	5	0
A98049-53	9	100	A98039-51	7	0	A98018-51	9	0
A98070-51	9	0	A98055-10	9	0	A98017-52	6	0
A98055-15	9	0	A98046-56	6	0	A98022-51	9	0
A98056-48	9	40	A98041-55	9	0	A98019-53	5	0
A98063-52	9	0	A98041-54	5	0	A98018-52	9	20
A98064-31	8	0	A98046-53	9	0	A98021-55	9	0
A98054-6	9	20	A98042-53	6	0	A98023-53	8	0
A98067-51	9	20	A98046-54	9	0	A98018-36	9	0
A98065-19	7	20	A98041-52	9	0	A98017-51	9	0
A95526-51	9	0	A98042-57	9	0	A98022-55	4	0
A96783-51	9	0	A98043-32	5	0	A98018-54	8	0
A98050-51	9	0	A98043-40	7	0	A98018-53	7	0
A98063-1	5	0	A98040-51	9	0	A98021-52	9	0
A98050-53	7	0	A98043-25	9	20	A98018-25	9	0

Oregon Table 13. Continued.

Entry	Foliage 10/8/01	%Tuber inf.	Entry	Foliage 10/8/01	%Tuber inf.	Entry	Foliage 10/8/01	%Tuber inf.
A98066-51	9	0	A98063-42	9	0	A98021-51	9	0
A98057-9	9	20	A96783-55	9	0	A98020-51	9	20
A98063-54	9	0	A98025-48	5	0	A98022-53	9	0
A98063-55	9	40	A98023-61	9	0	A96811-17	9	0
A98069-32	9	0	A98018-55	9	0	A96878-9	9	0
A96801-51	9	60	A98021-53	9	0	A96812-45	6	0
A98043-55	6	40	A98019-57	9	0	A96877-43	9	0
A98045-51	9	0	A98019-55	9	0	A96848-43	7	0
A98035-49	6	0	A98021-54	9	0	A96895-62	9	0
A98035-44	9	0	A98018-43	9	0	A96897-27	5	20
A98018-33	9	0	A96813-9	9	20	A98067-52	9	20
A96848-21	9	20	A96877-48	8	20	A95522-51	9	0
A96878-26	9	0	A98022-52	9	0	A95523-52	9	0
A96848-1	9	20	A98014-34	4	0	A96783-27	6	0
A96848-51	9	0	A98014-45	8	0	A96783-43	8	0
A98018-56	9	60	A98015-45	2	0	A95522-26	9	0
A96811-28	9	0	A98019-51	9	0	A96783-6	9	0
A96895-60	9	40	A98022-56	3	20	A95521-54	8	20
A96812-6	7	0	A96878-44	9	0	A95521-53	9	20
A96812-53	8	40	A98015-21	9	0	A96783-53	8	40
A96897-52	6	60	A96851-52	8	20	A96783-1	9	0
A96801-55	9	0	A98023-52	9	0	A98002-26	9	0
A96811-40	9	40	A98019-52	9	0	A98005-1	7	0
A96895-63	9	100	A98042-51	9	0	A98005-9	9	40
A96811-52	9	0	A96783-3	9	40	A98005-39	8	20
A96897-21	8	40	A95522-37	8	20	A98005-51	9	0
A98018-28	5	0	A95523-51	9	0	A98008-3	6	0
A98022-54	9	0	A98035-51	9	0	A98005-44	9	0
A98023-51	9	20	A98066-10	9	40	A98002-51	9	0
A98018-16	9	20	A95521-51	8	0	A98004-10	8	0
A98019-56	9	0	A98060-51	9	0	A98008-18	9	0
A98014-51	4	0	A98066-18	9	20	A98004-6	9	0
A96812-51	9	0	A98066-37	9	0	A98002-49	5	0
A96848-11	8	0	A95522-28	8	0	A98011-3	9	0
A98016-51	9	0	A95522-30	9	0	A98006-49	9	0
A98008-22	6	0	A98034-30	9	0	A97066-3	9	0
A98004-15	9	20	A96895-4	6	20	A96917-41	9	0
A98005-36	6	0	A98011-8	9	0	A98011-54	8	0
A98002-37	9	20	A98004-34	7	0	A98008-36	5	0
A98006-32	7	0	A98033-51	9	20	A96851-20	9	0

Oregon Table 13. Continued.

Entry	Foliage 10/8/01	%Tuber inf.	Entry	Foliage 10/8/01	%Tuber inf.	Entry	Foliage 10/8/01	%Tuber inf.
A98008-6	9	60	A96895-53	9	80	A96848-31	8	0
A98008-11	7	0	A98005-15	8	0	A98008-47	9	0
A98005-20	9	0	A98008-13	8	40	A98011-18	9	0
A96897-51	7	20	A98002-31	9	0	A98008-27	9	20
A98033-46	9	0	A98005-16	9	0	A98012-52	9	0
A98032-29	5	20	A96794-43	9	0	A98008-44	9	0
A96895-61	9	20	A98002-50	9	0	A98011-24	9	40
A96895-55	6	0	A96783-54	9	0	A98014-5	7	60
A96895-14	7	0	A98011-55	7	20	A98012-51	9	0
A96893-21	5	0	A98011-58	6	0	A98011-17	9	0
A96893-41	8	0	A98004-27	9	0	A98011-59	9	0
A96893-19	4	20	A98011-51	8	0	A98011-31	8	20
A96895-50	7	40	A98011-9	9	0	A98008-37	9	0
A96895-51	9	40	A98011-52	4	0	A98011-57	9	0
A98032-43	9	0	A98005-33	9	0	A98011-56	8	0
A96892-52	9	40	A98008-41	9	0	A98014-27	4	0
A98034-5	9	0	A98011-35	9	0	A97066-52	9	20
A96892-32	9	80	A98011-26	9	0	A98002-24	9	0
A98028-51	9	20	A96917-51	8	0	A98011-53	9	0
A98032-25	9	0	A98001-51	8	0	A98011-38	9	60
A96892-52	9	40	A98008-41	9	0	A98014-27	4	0
A98034-5	9	0	A98011-35	9	0	A97066-52	9	20
A96892-32	9	80	A98011-26	9	0	A98002-24	9	0
A98028-51	9	20	A96917-51	8	0	A98011-53	9	0
A98032-25	9	0	A98001-51	8	0	A98011-38	9	60
A97066-42	7	0	A98027-51	6	0	A98027-13	8	0
A97066-55	9	0	A98026-53	9	0	A96895-9	9	60
A98011-45	9	0	A96893-52	9	0	A96895-57	9	60
A98003-51	9	40	A96892-16	9	40	A96895-65	9	40
A9800-52	9	20	A96893-51	7	20	A96895-23	7	0
A98002-52	9	0	A98028-8	5	20	A98028-52	8	40
A98001-41	9	40	A98032-45	6	20	A96895-58	7	0
A98011-42	9	20	A98026-54	9	20	A97066-33	9	0
A96917-15	9	0	A98034-1	7	0	A97066-56	8	40
A97066-53	9	0	A98033-37	8	0	A96895-66	9	60
A97066	8	0	A98034-51	9	0	A96917-7	7	0
A97066-51	9	60	A98034-17	9	0	A96812-7	8	0
A97066-14	8	0	A98034-41	8	0	A96848-18	9	40
A98002-21	9	20	A96895-1	7	40	A96877-44	9	0
A96917-21	9	20	A96895-28	8	20	A96812-49	8	40
A97066-57	9	40	A96895-52	8	0	A98002-8	9	0
A96917-48	9	0	A96895-56	9	60	A98025-2	8	0
A98001-41	9	0	A96893-39	7	0	A96794-36	9	0
A98001-53	9	0	A96895-54	9	0	A96801-4	5	0

Oregon Table 13. Continued.

Entry	Foliage 10/8/01	%Tuber inf.	Entry	Foliage 10/8/01	%Tuber inf.	Entry	Foliage 10/8/01	%Tuber inf.
A96917-43	9	0	A98033-8	7	0	A98027-47	3	0
A98001-54	9	0	A98027-20	6	0	A98025-1	9	60
A97066-13	9	0	A96895-59	9	60	A96801-16	9	0
A97066-24	4	0	A98032-39	4	0	A96801-14	3	0
A98023-54	7	0	A96895-39	9	0	A96895-11	9	0
A96892-51	9	40	A96893-12	9	0	A98025-52	9	40
A98027-23	4	0	A96851-6	9	20	A98047-24	9	20
A96895-8	9	0	A96878-51	8	0	A98048-51	9	0
A98024-51	6	0	A96812-11	9	40	A98049-52	7	20
A90586-11	7	20	A96848-5	9	0	A98035-31	9	0
A98027-14	4	0	A96877-13	9	0	A98046-58	9	60
A98027-2	9	40	A96848-8	9	0	A96851-51	9	0
A98025-5	9	0	A98034-53	9	20	A96811-43	9	0
A98023-57	9	0	A98035-12	8	0	A96801-54	9	0
A98028-17	6	0	A98034-52	9	40	A98047-2	9	20
A98026-51	9	40	A98051-51	7	0	A98047-12	7	60
A98025-51	9	20	A98060-50	9	0	A98035-14	2	0
A98063-51	9	20	A98052-41	9	40	A98054-21	9	20
A98056-51	9	0	A98056-52	5	0	A98060-41	9	40
A96811-51	9	0	A98054-19	9	0	A98014-31	6	20
A96895-64	9	0	A98056-8	9	0	A96877-23	7	0
A98018-41	9	20	A98057-51	9	100	A96878-20	8	0
A98015-17	9	0	A98063-53	9	0	A96812-52	9	0
A96812-19	8	0	A98055-11	9	20			
A96812-8	9	0	A98055-13	9	20			

¹Ratings are averages for 2 reps: 1 = no foliar injury; 2 = 1-5%; 3 = 5-10%; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury.

PENNSYLVANIA

B. J. Christ and M.W. Peck

The potato evaluation trial was conducted at the Russell E. Larson Agricultural Research Center in Rock Springs, PA. This trial is part of an extensive and on-going project that evaluates promising clones for yield and chip processing potential. Clones that are identified as excellent performers are then evaluated in regional trials across Pennsylvania.

Materials and Methods

The trial was planted on May 10 as single row plots in a randomized complete block design with three replications. Plots were 10 ft long, with 36 inches between rows, 8 inches between seed pieces, and 5 ft breaks between treatments within the rows. Fertilizer was banded in furrow during planting at a rate of 980 lbs/A of 15-10-5 (N-P-K). The plots received 1.6, 6.0, 3.4, and 4.4 inches of rainfall during May, June, July, and August, respectively. The plots were vine killed on September 11 and 17. The tubers were harvested October 4-5.

Specific gravity was determined by the weight-in-air/weight-in-water method. Tubers were held at ambient temperature until they were placed in storage. The tubers chipped prior to January were held in a 55° F storage and those chipped after December were held at 45° F and then chipped at 45° F or reconditioned at 55° F for three or six weeks prior to chipping. Samples were chipped five times throughout the winter. Four tubers from each clone were peeled, cut in half, and sliced. Eight center slices from each half were cut and fried at 365° F. The chip samples were rated on a scale of 1-10 according to a modified snack food color chart.

Results

Rainfall was below average prior to and during the growing season. Irrigation was required to supplement rainfall with 2, 1 and 1.4 inches applied during June, July, and August respectively. Temperature throughout the season was average or above.

There were numerous lines with yield greater than Atlantic or Snowden. However, of those lines only a few had consistently light chip color. The following lines produced light chips regardless of storage temperature and had high yields: Snowden, Dakota Pearl, NY112, NY120, B0564-8, B0565-9, B0766-3, B1240-1, B1884-9, MSA091-1, MSG277-2, MSH031-5 T3-5, T20-15, U47-21, U109-6, W1242, W1386, W1431, and AF1775-2. The following lines chipped directly out of 45° F storage: Snowden, B1873-6, MN19157, MSG227-2, NY115, NY112, NY102, T3-5, W1355-1, W1386, AF2211-14, AF2213-4, AF2222-2, B2001-186, and MN19336.

The lines with the highest specific gravity were: B1425-9, B2000-185, AF1668-60, AF2206-7, AF2207-4, AF2210-3, AF2211-4, AF2211-9, AF2211-10, AF2215-1, MN19336, and W1431.

Those lines with nice appearance and high yield that perform well as a round white table-stock line were: AF1569-2, AF1615-1, AF1758-7, AF1938-3, NY125, T27-21, T2-2, T28-1, B1871-1, B1806-8, and B1870-17. Red-skinned table-stock lines with high yield were: ND5084-3R, B1523-4, B1816-5, B1758-4, T11-2, T15-1, T15-3, T17-2, CO86218-2, and CO89097-2R. AF1866-8, B1933-3, MSE202-3Rus, and W1836-3 were high yielding russet skinned lines with good fry color.

Acknowledgements

The evaluation trial was funded in part by the Pennsylvania Potato Research Program and a USDA Special Grant. We acknowledge the provision of seed by Kathleen G. Haynes, USDA-Beltsville; Walter DeJong, Cornell University; Gregory Porter, University of Maine; Susie Thompson, North Dakota State University; David Douches, Michigan State University; Horia Groza, University of Wisconsin; and Christian Thill, University of Minnesota.

Pennsylvania Table 1. Total and >1 7/8 " yield, specific gravity and chip color from the white-skinned potato evaluation trial in Centre County, Pennsylvania.

Variety/Line	Yield (cwt/A)		% US#1	% by size class ¹			Specific Gravity	Chip Color ²				
	Total	>1 7/8"		2	3	4		Nov.	Dec.	Jan.	Feb.	Feb. 45
Atlantic	580	516	89	5	46	49	1.094	4	4	5	4	6
Green Mountain	648	570	88	9	49	45	1.092	3	3	5	4	5
Katahdin	478	402	84	7	51	40	1.077					
Snowden	533	440	82	15	63	22	1.086					
Superior	613	561	91	5	38	58	1.080	6	5	6	6	7
Yukon Gold*	481	403	83	3	27	67	1.083	6	5	8	8	8
AF1455-20	499	449	90	5	34	63	1.091	7	6	6	5	7
AF1615-1	690	629	91	8	41	55	1.081	6	5	8	7	6
AF1668-60	346	255	73	4	28	58	1.109	3	4	5	4	6
AF1758-7	570	510	89	11	53	40	1.050	8	7	9	8	8
AF1763-2	447	404	90	10	55	38	1.062	8	7	10	9	10
AF1938-3	502	456	91	3	36	60	1.079	7	7	8	7	8
B0564-8	603	543	90	10	49	46	1.083	4	4	7	5	6
B0564-9	527	477	90	7	45	50	1.085	5	5	7	6	7
B0766-3	514	479	93	6	45	52	1.087	4	4	6	4	6
B1240-1	611	534	88	4	34	62	1.085	4	5	6	4	6
B1425-9*	593	534	90	9	54	40	1.123	5	4	6	5	7
B1806-8*	570	497	88	8	51	42	1.078	5	5	6		8
B1826-1	550	395	72	5	24	66	1.074	4	4	7	5	7
B1870-3	464	419	90	8	51	44	1.057	7	6	8	8	10
B1870-17	676	588	87	7	42	52	1.070	6	7	7	6	8
B1871-1	581	549	95	5	44	53	1.068	5	4	6	6	7
B1873-6	510	442	87	12	54	38	1.090	5	4	6	5	5
B1880-4	467	413	88	12	57	35	1.080	5	5	6	7	6
B1880-6	645	587	91	9	58	36	1.074	5	6	8	7	8
B1884-9	587	503	86	11	53	38	1.089	4	4	6	5	6
B1958-53	603	513	85	15	62	27	1.083	6	7	7	7	8
B1960-18	456	434	96	4	60	37	1.089	6	6	6	6	8
MN19157	483	423	88	12	56	37	1.078	4	4	7	6	5
MSA091-1	540	487	90	7	54	39	1.090	4	4	4	4	6
MSB107-1	554	479	86	3	27	70	1.080	5	5	7	5	7
MSE018-1	536	470	88	8	51	42	1.090	6	5	8	5	7
MSE221-1	548	463	84	4	32	63	1.076	7	7	9	8	10
MSF099-3	461	403	87	13	62	29	1.090	3	3	6	4	6
MSF313-3	367	318	88	10	44	50	1.075	4	4	6	5	6
MSG015-C	418	390	93	7	40	57	1.086	4	4	6	4	6
MSG227-2	599	519	87	12	68	22	1.090	4	4	7	4	5
MSH031-5	603	551	91	8	49	46	1.084	4	5	6	6	7
Dakota Pearl	482	454	94	6	35	63	1.085	3	4	6	4	6
NY112	610	556	92	6	44	52	1.087	4	3	7	3	5
NY115	447	421	94	6	39	58	1.087	3	4	5	4	5
NY120	595	530	89	2	32	64	1.093	4	4	5	4	6
NY121	411	347	85	15	61	28	1.078	5	6	6	5	6
NY124	510	439	86	7	44	48	1.085	4	4	5	4	6
NY125*	587	515	88	12	60	31	1.077	4	4	6	5	7

Pennsylvania Table 1. Continued.

Variety/Line	Yield (cwt/A)		%	% by size class ¹			Specific Gravity	Chip Color ²				
	Total	>1 7/8"		2	3	4		Nov.	Dec.	Jan.	Feb.	Feb. 45
T2-2*	629	562	89	5	42	53	1.089	4	4	5	4	6
T3-5	521	480	92	4	28	70	1.090	3	3	4	4	5
T3-9	569	539	95	5	40	58	1.078	4	3	6	4	6
T20-15	583	499	86	11	50	42	1.081	3	4	6	4	6
T27-21	638	562	88	12	59	32	1.075	6	6	7	6	7
T28-1	567	455	80	17	53	33	1.073	5	4	6	6	7
T35-34	613	505	82	17	59	28	1.085	5	6	6	4	6
U47-2	419	365	86	8	42	51	1.092	3	3	5	5	7
U47-21	533	476	89	9	41	54	1.089	3	4	6	4	7
U75-1	534	498	93	7	39	58	1.080	5	6	6	5	7
U85-12	501	461	92	5	39	58	1.079	3	4	6	5	7
U106-26	488	441	90	10	52	42	1.072	7	6	8	7	8
U109-6	570	523	92	8	54	41	1.081	4	4	6	5	6
W1201	460	404	88	7	34	61	1.089	5	5	6	5	6
W1242	499	459	92	5	32	65	1.085	3	3	5	3	6
W1313	402	337	83	13	38	54	1.093	4	4	5	5	6
W1355-1	436	313	72	28	58	46	1.085	3	3	5	3	5
W1386	624	552	89	10	45	49	1.085	4	3	5	4	5
W1431	536	491	92	8	53	42	1.094	3	3	6	4	6
AF2115-1**	662	538	81	15	59	28	1.076	5	6	8	6	8
AF2206-2**	761	681	89	11	59	34	1.087	6	5	6	5	6
AF2206-7**	603	561	93	7	43	54	1.097	4	4	6	4	7
AF2206-9**	576	493	86	14	65	24	1.087	4	3	6	3	6
AF2207-4**	630	547	87	13	55	36	1.099	4	4	7	5	6
AF2207-6**	639	576	90	10	58	36	1.079	6	6	7	7	7
AF2207-8**	652	606	93	7	39	58	1.083	5	7	7	6	8
AF2210-3**	908	835	92	8	36	61	1.095	4	5	7	5	7
AF2210-5**	773	709	92	8	54	41	1.090	5	6	7	6	7
AF2211-2**	639	580	91	7	37	59	1.086	3	4	7	3	7
AF2211-4**	565	498	88	12	53	40	1.096	7		7	5	6
AF2211-6**	528	430	81	15	43	48	1.093	3		6	4	6
AF2211-9**	685	626	91	6	40	57	1.095	3	4	4	3	7
AF2211-10**	671	595	89	9	44	50	1.099	4	4	6	4	6
AF2211-14**	480	340	71	29	49	31	1.093	3	4	5	4	5
AF2213-4**	576	512	89	8	33	63	1.084	3	4	6	4	5
AF2214-1**	666	595	89	8	42	52	1.085	4	4	6	5	7
AF2215-1**	738	718	97	3	59	40	1.105	3	3	6	3	6
AF2215-3**	730	709	97	3	51	47	1.078	6	4	7	5	7
AF2215-4**	678	626	92	4	57	38	1.092	4	4	6	5	6
AF2215-5**	565	468	83	3	26	68	1.088	3	5	5	3	7
AF2217-3**	571	511	89	11	49	46	1.085	4	4	6	4	6
AF2219-1**	552	503	91	9	55	40	1.076	4	4	6	4	6
AF2219-2**	385	292	76	24	47	38	1.078	5	6	5	5	6
AF2220-1**	599	570	95	5	49	49	1.085	5	4	7	4	7
AF2220-7**	381	298	78	7	43	46	1.082	3	4	6	3	6
AF2222-2**	537	460	86	14	62	28	1.081	4	4	5	4	4
AF2222-3**	723	622	86	11	52	40	1.092	5	4	5	5	7

Pennsylvania Table 1. Continued.

Variety/Line	Yield (cwt/A)		% US#1	% by size class ¹			Specific Gravity	Chip Color ²				
	Total	>1 7/8"		2	3	4		Nov.	Dec.	Jan.	Feb.	Feb. 45
AF2222-4**	585	501	86	14	44	48	1.076	4	3	6	4	6
AF2222-5**	695	584	84	10	48	43	1.078	4	4	5	4	6
AF2242-10**	637	581	91	9	72	21	1.091	6	6	8	7	7
AF2256-1***	609	465	76	24	71	7	1.091	7	4	5	6	7
AF2268-2**	498	456	92	8	54	41	1.092	5	5	7	6	8
AF2268-6**	430	353	82	18	57	31	1.079	5	5	7	5	8
AF2271-6**	513	435	85	6	50	41	1.077	6	5	8	5	6
ARS-W95-6498-5**	633	585	92	8	38	58	1.087	3	3	5	4	6
ARS-W96-40006-1***	607	517	85	15	73	14	1.094	5	6	7	6	7
ARS-W96-40022-5**	459	380	83	17	55	33	1.089	4	3	6	6	6
ARS-W96-4654-1**	527	453	86	14	73	15	1.086	5	4	5	4	6
ARS-W97-4287-2**	703	641	91	9	65	29	1.089	6	4	8	6	7
B1970-1***	416	393	95	5	65	31	1.084	7	5	6	6	7
B1991-126**	376	329	88	12	68	23	1.064	6	8	8	7	9
B1991-129**	875	782	89	5	41	54	1.064	7	7	8	6	9
B1992-177**	528	466	88	12	50	43	1.081	4	5	7	4	7
B2000-185**	720	618	86	6	35	59	1.102	6	5	5	5	7
B2001-186**	787	737	94	6	39	58	1.083	3	3	5	3	5
B2001-197**	785	747	95	1	29	69	1.071	3	4	5	3	7
B1971-11**	457	401	88	12	58	34	1.082	6	5	6	6	7
AF1755-2	696	656	94	6	50	47	1.091	5	4	8	7	8
AF1569-2	728	584	80	4	22	73	1.074	6	6	8	6	7
MN19315**	514	251	49	51	35	0	1.085	5	4	5	4	7
MN19336***	855	651	76	24	55	28	1.094	4	4	5	5	5
MN19484***	929	801	86	14	43	50	1.053	7	7	7	7	8
AC87340-2W**	469	434	93	7	58	38	1.073	3	3	7	4	6
AC89653-3W**	602	469	78	22	71	9	1.09	5	4	7	4	7
Aquilon**	453	370	82	14	45	45	1.091	4	4	6	3	6
MN19350*	531	488	92	7	50	46	1.086	6	6	7	7	9
MSB106-7	642	588	91	9	59	54	1.077	7	6	9	8	8
NY102	382	356	94	6	58	38	1.084	4	3	5	4	5
LSD	100	103	10	5	12	14						

¹Percentage of total yield according to size class. For round whites: 2 = 1.5-1.875 in, 3 = 1.875-2.5 in, 4 = 2.5-4.0 in.

²Chip color is based on a 1 – 10 scale with 1 = lightest, 10 = darkest, 1-5 = acceptable chip color.

Nov. = Stored at 55° F from November 9, 2001 and chipped on November 13, 2001.

Dec. = Stored at 55° F from November 9, 2001 and chipped on December 11, 2001.

Jan.= Stored at 45° F from November 16, 2001 than transferred to 55° F three weeks prior to chipping on January 31, 2002.

Feb.= Stored at 45° F from November 16, 2001 than transferred to 55° F six weeks prior to chipping on February 18-19, 2002.

Feb. 45 = Stored at 45° F from November 16, 2001 and chipped on February 26 - 27, 2002.

** = Data based on non-replicated plots. All other lines are an average of 3 replicates.

* = Yellow flesh.

*** = Non-replicated and yellow flesh.

Pennsylvania Table 2. Total and >1 7/8 " yield, and specific gravity from the red-skinned potato evaluation trial in Centre County, Pennsylvania.

Variety/Line	Yield (cwt/A)		%	% by size class ¹			Specific Gravity
	Total	>1 7/8"		2	3	4	
Cherry Red	476	455	95	5	46	51	1.081
Chieftain	466	374	82	7	37	55	1.075
Dk Rd Norland	435	381	88	12	43	50	1.064
Sup. RdNorland	486	432	89	4	26	70	1.057
B0984-1	600	522	87	4	34	61	1.086
B1145-2	427	358	84	16	66	21	1.066
B1523-4	646	561	87	13	54	37	1.078
B1758-3	533	467	88	12	61	30	1.080
B1758-4	589	520	88	12	55	37	1.081
B1816-5	472	404	86	14	68	21	1.075
B1952-2	490	454	93	7	62	33	1.085
ND3196-1R	362	336	93	7	43	54	1.075
Dakota Rose	220	224	84	16	48	43	1.061
ND5084-3R	744	629	85	7	36	57	1.068
T11-2	687	619	90	8	48	47	1.078
T15-1	601	479	80	20	62	22	1.078
T15-3	602	522	86	14	63	27	1.071
T17-2	534	407	76	24	64	16	1.071
W1874-1R	344	243	70	30	62	11	1.072
CO86218-2	508	438	86	14	63	27	1.077
CO89097-2R	640	571	89	8	41	54	1.080
AF2138-1**+	579	334	58	42	54	7	1.083
AF2151-1**	653	578	89	11	72	19	1.078
AF2230-2**	748	698	93	7	48	48	1.110
AF2230-5**	643	575	89	4	47	48	1.080
MN17922**	718	666	93	1	32	66	1.064
MN17993**	825	717	87	13	59	32	1.074
MN18365**	628	532	85	15	64	24	1.059
Ware's Pride**	800	720	90	10	61	32	1.068
LSD	189	161	10	8	13	13	

¹Percentage of total yield according to size class. For red skinned: 2 = 1.5-1.875 in, 3 = 1.875-2.5 in, 4 = 2.5-4.0 in.

** = Data based on non-replicated plots. All other lines are an average of 3 replicates.

* = Yellow flesh. ***= Non-replicated and yellow flesh.

+ = Purple flesh.

Pennsylvania Table 3. Total and marketable yield, specific gravity and french fry color for the russet-skinned or long white potato evaluation trial in Centre County, Pennsylvania.

Variety/Line	Yield (cwt/A)		%> 8 oz	% by size class ¹				Specific Gravity	Percent Pickouts	french fry color ²		
	Total	>8 oz		2	3	4	5			Dec.	Feb. (3)	Feb. (6)
Norkotah Russet	481	393	82	14	27	31	23	1.072	23	1	1	1
AF1753-16	279	240	86	11	35	43	8	1.093	60	1	0	0
AF1866-8	313	255	79	14	46	26	7	1.073	45	0	0	0
B1933-3	381	257	66	27	36	18	12	1.089	41	0	0	0
B1956-86	328	146	44	39	25	19	0	1.081	40	0	0	0
Belrus	331	235	71	24	27	33	11	1.084	29	2	2	0
Gem Russet	352	251	68	18	33	30	6	1.086	35	0	0	1
MSE202-3Rus	365	266	73	23	35	23	15	1.086	42	0	0	1
Russet Legend	281	211	75	20	23	34	18	1.075	29	0	0	0
W1836-3	437	333	77	19	31	28	17	1.089	42	0	0	0
AC87138-4Rus	154	62	41	43	16	24	0	1.091	80	0	0	0
CO85026-4Ru	293	224	77	19	15	34	17	1.088	39	0	0	0
AC91014-2Ru	312	159	51	31	30	28	0	1.092	48	0	0	0
AC89536-55Rus	372	159	43	38	38	5	0	1.091	46	0	0	0
AC87079-3Ru	234	138	59	35	18	40	0	1.096	68	0	0	0
LSD	143	128	13	10	14	18	14		19			

¹ Percentage of total yield according to size classes; 2 = 4-8 oz, 3 = 8-12 oz, 4 = 12-16 oz, 5=>16 oz.

² French Fry Color: USDA Scale Color Standards for Frozen Fried Potatoes with 000 = lightest, 4 = darkest.

Dec. = Stored at 55° F from November 9, 2001 and fried on December 13, 2001.

Feb. (3) = Stored at 45° F from November 16, 2001 then transferred to 55° F three weeks prior to frying on February 1, 2002.

Feb. (6) = Stored at 45° F from November 16, 2001 than transferred to 55° F six weeks prior to frying on February 22, 2002.

TEXAS

J. Creighton Miller, Jr., Douglas C. Scheuring and Jeff W. Koym

Variety Development and Testing

Seedling program. In 2001, 106,628 first year seedlings, resulting from 426 different parental combinations or families (crosses), were grown for selection on the Barrett Farm (71,716) near Springlake and on the CSS Farm (34,912) near Dalhart: 255 selections were made from this material. The 2001 first year seedling tubers from Texas (15,950) were grown during the fall of 2000 at College Station, primarily from true seed provided by Rich Novy in Idaho. The remaining seedling tubers were provided by Rich Novy, Idaho (15,437), Kathy Haynes, Beltsville, Maryland (480), Al Mosley, Oregon (48,235), David Holm, Colorado (18,962), Christian Thill, Minnesota (940), Bob Hanneman, Madison, Wisconsin (1,987), and Bryce Farnsworth, North Dakota (4,637). Since the inception of the Texas Variety Development Program in 1973, 1,354,032 seedlings have been grown for selection in Texas, from which 6,482 original selections have been made. The Texas program has released, or jointly released, nine varieties.

Adaptation trials. The objectives of the adaptation trials are: (1) to test advanced selections and named varieties to determine their potential as replacement varieties for those presently grown in Texas, and (2) to identify potential parents for use in the Texas breeding program. Some 232 entries were evaluated near McCook, 322 advanced selections and varieties were tested in replicated and nonreplicated trials near Springlake, while 311 entries were evaluated near Dalhart (Table 1). A small seed increase nursery was again grown at the San Luis Valley Research Center, Center, Colorado by David Holm.

2001 McCook Trials

Summary of growing conditions. The nursery planted near McCook experienced lower than normal temperature in December and higher than normal temperatures in February with a brief freeze for a few hours on January 19th. Precipitation was lower than normal in April. It

was planted on December 11th, 2000 and harvested April 10th, 2001.

Trials conducted:

- Seed Increase and Evaluation of 2000 Texas Red Selections
- Variety Evaluation
- Seed Treatments

Seed Increase and Evaluation of 2000 Texas Red Selections. The south Texas trial site was used to evaluate and increase first year specialty selections, including red skin and yellow flesh from Springlake and Dalhart that had broken dormancy by December 1st. A small number of additional entries representing more advanced selections and/or varieties were also included for evaluation under south Texas conditions. The first year selections will be planted again in 2002 in 12-hill plots in south Texas, with the remainder of the seed planted in Springlake and Dalhart.

2001 Springlake Trials

Summary of growing conditions. Near normal temperatures were experienced for the 2001 growing season. Below normal precipitation was recorded for the months of April, June, July, and August, with one above normal rain event the first week of May.

Trials conducted:

- Western Regional Cooperative Russet
- Western Regional Cooperative Red (early harvest)
- Western Regional Cooperative Red (late harvest)
- Southwestern Regional Cooperative Russet
- Southwestern Regional Cooperative Red (early harvest)
- Southwestern Regional Cooperative Red (late harvest)
- Southwestern Regional Cooperative Specialty
- Advanced Selection Russet *
- Texas Advanced Selection Russet *
- Texas Advanced Selection Red (early harvest)*
- Texas Advanced Selection Red (late harvest)*
- Yellow Flesh *

Only trials marked with an * are reported below.

Advanced Russet Selection Trial. This russet trial consisted of 19 entries with the check varieties Russet Norkotah and Stampede Russet (Texas Table 1).

Summary. Many entries performed better than the check variety Russet Norkotah. The most outstanding entries were TXN5296 and ATX84706-2Ru, followed by TXNS112, A9014-2, and TXNS278.

Texas Advanced Selection Russet Trial. The trial consisted of 21 entries, including the check variety Russet Norkotah. With the exception of Russet Norkotah, all the seed was Texas grown. (Texas Table 2).

Summary. Overall the outstanding selection appeared to be ATX97130-IRu followed by ATX91137-IRu and ATX9332-8Ru.

Texas Advanced Red Selection Trial (early harvest). This trial consisted of 23 entries. With the exception of the check variety Red LaSoda, all seed came from Texas. (Texas Table 3).

Summary. All things considered, AOTX91861-4R appeared to be the outstanding entry.

Texas Advanced Red Selection Trial (late harvest). The above 23 entries were planted in this late trial and 8 entries were selected for grading based on a number of yield and quality factors. Interestingly, all of these entries tended to be later maturing as reflected in maturity ratings and percent dead vines at vine kill (data not shown). With the exception of the check variety Red LaSoda, all seed came from Texas. Vine kill for this trial occurred two weeks later than the early harvest. In addition, within-row spacing for this trial was 12" while the early harvest was 9" (Texas Table 4).

Summary. All of the entries in this trial warrant further evaluation.

Yellow Flesh Trial. The yellow flesh trial consisted of 12 entries, including the check variety Yukon Gold. The seed was from Colorado or Canada while the Texas entries were from Texas sources. Within-row spacing for this trial was 12"

(Texas Table 5).

Summary. It would appear that Platina was the outstanding entry in this trial. However, specialty variety preference, especially with yellow flesh lines, is very subjective.

2001 Dalhart Trials

Summary of growing conditions. These trials were planted 30 miles southwest of Dalhart. Temperatures were normal for the growing season. Precipitation was lower than average in June and July and higher than average in August.

Trials conducted:

- Western Regional Chipping
- Yellow Flesh*
- Russet Advanced Selection Observation*
- Texas Advanced Selection Red *
- 2000 Nursery

Only trials marked with an * are reported below.

Yellow Flesh. The trial consisted of 11 entries, including the check variety Yukon Gold. The seed sources for this trial were Colorado, Texas and Canada. (Texas Table 6).

Summary. Latona, Vivaldi, Platina, and Yukon Gold were outstanding. Latona, Vivaldi, and Platina were also the outstanding entries this year at Springlake. However, if small tubers are the objective, Morning Gold and perhaps Vivaldi and Santina would be considered the outstanding entries. Again, outstanding among specialty varieties is very dependent on specific production and marketing objectives.

Russet Advanced Selection Observation. This single replication observation russet trial included 16 entries, with the check variety Russet Norkotah (Texas Table 7).

Summary. While there were a number of acceptable entries, the outstanding entry was TXNS223.

Texas Advanced Selection Red. This trial was composed of 16 advanced Texas red selections and the check varieties Red LaSoda and Dakota Rose. With the exception of the two checks, all seed was Texas grown (Texas Table 8).

Summary. Clearly the two outstanding entries were NDTX4304-1R and NDTX4271-5R based on overall performance. NDTX4271-5R will be advanced to the Western Regional Trial as soon as possible.

2001 Nursery. The Dalhart nursery was used to evaluate and increase the 2000 russet selections from Springlake. Red selections that had not broken dormancy in time for the South Texas planting were also included. This nursery was also used for seed increase of red, white, russet, and specialty selections.

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2133

Texas Table 1. Total yield, total yield of U.S. No. 1, under 4 ounce and culls/No.2 potatoes and general rating of 19 entries in the Advanced Selection Russet Trial grown near Springlake, Texas-2001.

Variety or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt. Per Acre					Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz			
TX1385-12Ru	461.0	331.7	132.8	114.2	82.4	2.2	108.8	20.6	3.0
TXNS296	445.3	375.3	116.6	124.9	102.0	31.8	36.9	33.1	3.8
ATX84378-6Ru	436.6	343.6	36.7	115.2	151.1	40.5	39.8	53.2	3.4
ATX9202-3Ru	435.2	362.1	107.0	157.0	83.0	15.1	55.8	17.4	3.3
AF1753-16	410.0	272.4	93.9	121.9	56.6	0.0	48.9	88.8	2.7
ATX84706-2	397.7	351.7	50.2	108.3	122.2	71.0	31.4	14.6	3.6
TXNS112	397.7	333.7	101.8	119.5	100.5	11.8	53.8	10.2	3.8
A9014-2	389.5	326.1	72.9	123.9	107.5	21.8	45.7	17.7	3.8
TXNS278	381.1	310.6	67.2	94.3	129.6	19.5	31.4	39.1	3.8
TXNS223	357.1	282.2	60.3	133.4	60.3	28.3	57.2	17.7	3.4
CORN-8	341.9	294.0	73.1	103.4	88.8	28.8	36.6	11.3	3.6
TXNS249	332.7	274.9	84.1	125.6	58.1	7.1	49.0	8.9	3.3
MSE192-8Rus	330.0	259.1	111.5	96.9	45.9	4.7	58.3	12.6	2.6
TXNS102	321.5	264.4	98.4	99.9	66.1	0.0	49.9	7.3	3.7
CORN-3	318.6	267.3	56.7	124.7	83.5	2.4	35.0	16.3	3.2
Stampede Russet	288.4	248.5	68.6	109.6	68.0	2.4	40.2	15.3	3.0
Russet Norkotah	277.0	231.7	67.1	109.4	50.5	4.8	42.6	15.5	2.9
ATX92230-1Ru	227.9	193.5	94.9	61.9	35.4	1.2	61.1	8.0	2.7
MSE202-3Rus	172.6	127.7	51.1	58.7	17.8	0.0	35.9	9.1	2.0
Average	353.8	286.9	81.3	110.7	79.4	15.4	48.3	21.9	3.2
L.S.D. (.05)	62.0	57.0	32.2	34.3	35.7	16.6	20.6	17.0	

¹ 1=very poor to 5= excellent

Texas Table 2. Total yield, total yield of U.S. No. 1, under 4 ounce and culls/No.2 potatoes and general rating of 21 entries in the Texas Advanced Selection Russet Trial grown near Springlake, Texas-2001.

Variety Or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt. Per Acre					Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz			
MWTX2609-2	478.3	392.0	88.8	135.6	120.2	47.5	45.6	40.7	2.9
AOTX97287-1	454.4	399.9	143.8	178.1	78.0	0.0	47.2	7.4	2.8
MWTX548-2	430.8	294.4	133.4	110.1	50.9	0.0	70.7	65.6	3.1
MWTX2609-4	408.5	331.8	58.3	105.6	135.2	32.6	46.3	30.5	2.9
TDA99-1Ru	404.6	280.1	90.4	119.4	70.3	0.0	61.7	62.8	3.0
ATX97232-1	368.9	305.2	129.8	112.7	62.6	0.0	58.5	5.3	2.5
NDTX4790-1	345.0	251.8	111.1	109.6	31.1	0.0	64.3	28.9	3.0
AOTX97130-1	326.9	298.7	56.6	95.2	86.5	60.3	22.8	5.4	3.3
ATX91137-1Ru	321.0	272.3	62.2	122.8	84.2	3.1	37.3	11.4	3.1
ATX82539-4Ru	317.2	274.7	59.9	132.5	77.3	5.0	42.1	0.4	3.1
AOTX96265-2	290.3	255.9	75.6	103.3	77.1	0.0	34.4	0.0	2.7
ATX9332-12Ru	274.4	211.7	71.8	103.9	36.0	0.0	47.3	15.4	3.1
ATX9302-1Ru	273.0	236.9	56.6	81.2	73.4	25.6	32.7	3.4	3.0
AOTX97175-4	264.9	222.7	34.3	39.6	102.2	56.4	19.2	8.6	2.6
ATX9332-8Ru	261.8	208.4	49.6	73.2	59.2	25.5	34.9	7.9	2.8
AOTX97164-1	259.9	208.7	122.7	57.5	28.5	0.0	43.8	7.4	2.5
AOTX97213-1	258.6	182.0	68.5	77.1	36.4	0.0	43.8	32.8	3.1
AOTX95196-4	244.1	226.8	20.2	80.7	98.9	27.0	14.2	3.1	1.6
Russet Norkotah	233.0	191.8	72.8	80.0	34.6	4.5	37.9	3.3	1.7
NDTX4898-1Ru	228.3	193.4	55.0	83.9	47.3	7.3	29.2	5.7	3.3
AOTX96458-1	151.5	135.2	30.1	60.5	41.3	3.4	14.2	2.0	3.3
Average	314.1	255.9	75.8	98.2	68.1	14.2	40.4	16.6	2.8
L.S.D. (.05)	81.4	79.0	29.6	51.1	37.2	26.9	20.8	26.0	

¹ 1=very poor to 5= excellent

Texas Table 3. Total yield, total yield of U.S. No. 1, under 4 ounce and culls/No.2 potatoes and general rating of 23 entries in the Texas Advanced Selection Red Trial (early harvest, 98 DAP) grown near Springlake, Texas-2001.

Variety Or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt. Per Acre					Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz			
BTX1810-1R	363.9	280.8	87.3	116.4	68.5	8.6	56.5	26.5	3.9
NDTX4784-9R	326.2	246.0	105.3	106.0	34.8	0.0	77.5	2.7	3.4
ATX96746-1R	301.8	231.5	93.8	112.1	25.6	0.0	50.2	20.1	4.0
Red LaSoda	289.6	228.9	74.6	121.3	33.0	0.0	58.5	2.3	3.9
NDTX4828-2R	287.5	133.2	62.4	70.8	0.0	0.0	126.6	27.6	2.9
AOTX91861-4R	286.9	214.3	97.6	93.4	23.3	0.0	61.5	11.1	3.7
BTX1810-2aR	273.8	198.0	79.8	83.0	35.1	0.0	68.0	7.9	3.3
NDTX4847-7R	262.7	189.2	103.1	68.1	17.9	0.0	67.6	5.9	3.7
AOTX93483-1R	222.5	140.4	81.6	49.0	9.9	0.0	75.9	6.3	2.4
NDTX5407-1R	217.3	61.3	43.2	18.1	0.0	0.0	130.5	25.5	3.2
COTX94216-1R	211.6	112.4	83.0	26.7	2.7	0.0	97.0	2.2	2.9
ATTX82700-12R	192.8	121.6	84.6	29.6	7.4	0.0	43.2	28.0	2.7
NDTX5438-11R	187.4	111.5	79.4	32.1	0.0	0.0	74.4	1.4	3.3
ATX96744-1R	178.8	68.3	68.3	0.0	0.0	0.0	109.2	1.3	2.7
COTX93069-5R	172.9	27.8	27.8	0.0	0.0	0.0	145.1	0.0	3.2
COTX95111-1R	169.4	65.7	51.2	14.5	0.0	0.0	101.9	1.8	3.2
COTX93053-4R	168.0	47.0	43.2	3.8	0.0	0.0	118.7	2.3	3.3
COTX94218-1R	143.1	59.7	45.2	14.5	0.0	0.0	73.9	9.5	2.9
ATTX83355-7R	135.9	33.2	33.2	0.0	0.0	0.0	102.8	0.0	2.2
NDTX5003-2R	128.6	79.4	40.9	30.3	8.2	0.0	49.1	0.0	3.0
NDTX4784-7R	94.1	46.4	39.6	6.8	0.0	0.0	47.7	0.0	3.0
COTX93032-1R	86.8	41.6	33.7	7.9	0.0	0.0	39.1	6.1	2.9
ATTX83355-11R	61.1	38.4	32.8	5.6	0.0	0.0	21.0	1.8	2.4
Average	207.1	120.7	64.9	43.9	11.6	0.4	78.1	8.3	3.1
L.S.D. (.05)	62.8	64.5	45.0	38.8	29.1	ns	33.5	ns	

¹ 1=very poor to 5= excellent

Texas Table 4. Total yield, total yield of U.S. No.1, under 4 ounce and culls/No.2 potatoes and general rating of 8 entries in the Texas Advanced Selection Red Trial (late harvest, 111 DAP) grown near Springlake, Texas-2001.

Variety or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt. Per Acre					Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz			
AOTX93483-1R	296.0	232.1	86.1	113.7	32.3	0.0	63.9	0.0	3.1
BTX1810-1R	275.1	238.8	52.8	83.5	73.0	29.4	36.3	0.0	3.5
Red LaSoda	244.2	188.3	84.4	68.8	35.0	0.0	55.9	0.0	3.2
NDTX4828-2R	228.1	187.8	101.7	69.0	17.1	0.0	40.3	0.0	3.0
AOTX91861-4R	223.5	196.5	62.3	76.1	58.1	0.0	27.1	0.0	3.5
NDTX4784-7R	202.3	168.9	54.1	110.4	4.4	0.0	33.4	0.0	2.7
COTX93069-5R	199.9	82.3	68.5	13.8	0.0	0.0	117.7	0.0	3.1
NDTX5438-11R	196.6	131.8	65.4	55.6	10.9	0.0	64.8	0.0	3.1
Average	233.2	178.3	71.9	73.9	28.9	3.7	54.9	0.0	3.1
L.S.D. (.05)	ns	ns	ns	46.9	ns	15.4	30.8	ns	

¹ 1=very poor to 5= excellent

Texas Table 5. Total yield, total yield of U.S. No.1, under 4 ounce and culls/No.2 potatoes and general rating of 12 entries in the Yellow Flesh Trial grown near Springlake, Texas-2001.

Variety or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt. Per Acre					Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz			
Platina	387.4	359.6	88.6	162.5	100.3	8.3	27.8	0.0	3.9
Latona	387.1	310.2	132.1	155.5	19.8	2.9	76.9	0.0	2.9
Vivaldi	375.5	308.6	114.6	145.1	49.0	0.0	66.9	0.0	3.0
Adora	355.1	292.8	104.3	148.0	40.5	0.0	62.3	0.0	3.3
Ilona	339.2	304.7	73.0	143.5	83.3	4.8	34.5	0.0	3.2
Morning Gold	329.6	236.3	137.0	89.1	7.0	3.3	93.3	0.0	2.9
Satina	307.8	228.0	130.4	76.9	20.7	0.0	79.7	0.0	3.3
BTX1749-2Ru/Y	298.6	260.7	80.2	114.5	63.3	2.7	37.9	0.0	3.6
Yukon Gold	295.4	275.9	62.3	127.7	80.9	5.0	19.6	0.0	4.0
BTX1754-1W/Y	274.5	242.2	61.2	104.6	71.0	5.4	32.3	0.0	3.7
BTX1544-2W/Y	255.8	225.8	64.6	103.4	52.7	5.1	30.0	0.0	3.8
ATX961007-1	160.9	112.6	53.3	50.1	9.2	0.0	48.3	0.0	2.7
Average	335.0	281.9	98.4	126.7	53.6	3.2	53.1	0.0	3.4
L.S.D. (.05)	40.4	30.5	31.1	29.4	26.7	ns	21.7	ns	

¹ 1=very poor to 5= excellent

Texas Table 6. Total yield, total yield of U.S. No. 1, under 4 ounce and culls/No.2 potatoes and general rating of 11 entries in the Yellow Flesh Trial grown near Dalhart, Texas-2001.

Variety or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt. Per Acre					Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz			
Latona	584.5	467.2	141.1	190.7	128.4	7.1	99.3	18.0	3.2
Vivaldi	581.4	425.6	248.8	118.8	42.5	15.6	155.8	0.0	3.3
Platina	537.5	463.8	150.3	152.5	124.4	36.6	70.6	3.1	3.1
Yukon Gold	523.7	463.7	119.8	175.0	125.6	43.2	48.7	11.3	3.2
Morning Gold	519.3	242.6	189.6	42.1	10.9	0.0	262.2	14.5	3.1
Adora	435.1	316.7	139.8	107.9	50.8	18.2	102.0	16.3	2.8
BTX1749-2Ru/Y	430.0	357.0	80.3	89.0	154.7	33.0	46.8	26.1	3.1
Satina	428.0	267.8	158.8	64.9	44.1	0.0	152.0	8.2	2.9
Ilona	411.8	383.0	115.0	165.8	97.1	5.1	28.8	0.0	2.9
BTX1544-2W/Y	384.2	310.3	135.1	105.9	69.4	0.0	70.1	3.8	2.9
BTX1754-1W/Y	273.8	211.8	71.4	73.4	67.1	0.0	55.9	6.1	2.8
Average	464.5	355.4	140.9	116.9	83.2	14.4	99.3	9.8	3.0
L.S.D. (.05)	87.9	85.4	37.4	44.7	42.3	20.8	19.5	13.3	

¹ 1=very poor to 5= excellent

Texas Table 7.

Total yield, total yield of U.S. No. 1, under 4 ounce and culls/No.2 potatoes and general rating of 16 entries in the Russet Advanced Selection Observation Trial grown near Dalhart, Texas-2001.

Variety or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt. Per Acre					Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz			
TX1385-12Ru	494.6	363.8	51.8	134.6	165.8	11.6	63.4	67.3	3.0
TXNS223	468.7	338.9	85.2	147.2	89.1	17.4	100.7	29.1	4.0
TXNS278	447.4	244.0	46.5	137.5	60.0	0.0	100.7	102.7	3.0
TXNS112	418.3	240.2	102.7	67.8	69.7	0.0	89.1	89.1	3.7
MSG274-3	417.4	65.9	65.9	0.0	0.0	0.0	324.4	27.1	2.0
TXNS296	408.7	308.0	69.7	154.9	58.1	25.2	65.9	34.9	3.2
ATX9202-3Ru	395.1	246.0	69.7	112.3	63.9	0.0	52.3	96.8	3.7
ATX92230-1Ru	386.2	243.8	63.9	129.8	39.2	10.9	101.7	40.7	3.2
CORN-3	385.4	292.5	87.2	110.4	44.5	50.4	56.2	36.8	3.7
ATX84378-6Ru	373.8	325.4	44.5	50.4	106.5	124.0	15.5	32.9	3.7
TXNS249	371.9	234.4	102.7	65.9	40.7	25.2	137.5	0.0	2.7
Stampede	366.1	263.4	131.7	83.3	48.4	0.0	102.7	0.0	3.0
ATX84706-2	365.1	306.5	27.1	62.5	119.1	97.8	48.9	9.7	3.7
CORN-8	364.1	249.8	48.4	94.9	83.3	23.2	75.5	38.7	3.7
TXNS102	356.9	290.5	81.3	137.0	46.5	25.7	53.3	13.1	3.7
Russet Norkotah	331.2	226.1	70.7	114.3	41.2	0.0	101.7	3.4	3.0
Average	396.9	264.9	71.8	100.2	67.3	25.7	93.1	38.9	3.3

¹ 1=very poor to 5= excellent

Texas Table 8. Total yield, total yield of U.S. No.1, under 4 ounce and culls/No.2 potatoes and general rating of 16 entries in the Texas Advanced Selection Red Trial grown near Dalhart, Texas-2001.

Variety Or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt. Per Acre					Under 4 oz.	Culls/ No.2	General Rating ¹
		Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz			
NDTX731-1R	609.4	514.9	139.4	244.9	126.8	3.9	88.4	6.2	3.0
NDTX4304-1R	577.0	447.9	200.1	160.1	82.1	5.7	125.5	3.7	4.0
NDC5281-2R	570.1	426.8	259.3	145.4	22.2	0.0	141.8	1.5	3.2
Red LaSoda	562.7	481.0	124.3	166.4	131.5	58.7	68.1	13.6	3.5
NDTX4271-5R	500.4	395.8	127.7	181.2	87.0	0.0	100.6	4.0	4.1
COTX93032-1R	397.7	263.2	150.7	60.5	48.5	3.6	126.6	8.0	2.7
COTX94216-1	388.6	304.1	90.0	131.5	78.6	4.1	81.1	3.5	2.7
Dakota Rose	363.6	305.4	85.5	132.4	55.7	31.8	58.2	0.0	3.3
BTX1810-2a	357.5	285.4	59.2	80.3	102.9	43.0	65.8	6.4	2.7
NDTX4828-2R	345.2	251.4	138.9	85.0	27.4	0.0	85.9	7.9	2.8
BTX1810-1	331.2	305.0	65.9	139.1	68.2	31.9	26.2	0.0	3.2
COTX93053-4R	324.0	100.7	85.8	14.8	0.0	0.0	222.4	0.9	2.8
NDTX6356-3R/Y	231.6	122.3	88.1	26.9	7.3	0.0	102.9	6.4	2.6
NDTX4784-7	181.3	152.1	50.7	69.5	32.0	0.0	29.2	0.0	2.5
ATTX82706-2R	151.3	71.4	58.8	12.6	0.0	0.0	79.9	0.0	2.5
AOTX93483-1	175.3	136.2	39.0	68.3	16.9	12.0	39.1	0.0	2.8
Average	379.2	285.2	110.2	107.4	55.4	12.2	90.1	3.9	3.0
L.S.D. (.05)	58.6	56.4	51.2	44.5	31.2	22.1	27.2	7.3	

¹ 1=very poor to 5= excellent

VIRGINIA

S.B. Sterrett and C.P. Savage, Jr.

Introduction

Trials were conducted at the Eastern Shore Agricultural Research and Extension Center in Painter, Virginia. Promising clones were evaluated for yield, tuber quality and appearance, vine and tuber maturity, processing (chip) potential and freedom from internal and external tuber defects. To address a potential marketing niche, red-skinned clones were evaluated for suitability in this growing area.

Methods

All trials were planted on a Bojac sandy loam soil. Trials were planted on March 25 in single row plots 25 feet in length, 3 feet between rows. Round white trials were planted at 12 inches within-row spacing. The red-skinned trial was planted at 9 inch spacing. A randomized complete block design with 4 replications was used for all trials. Fertilizer (100 lbs. N, 44 lbs. P, and 83 lbs. K/A) was banded at planting. Herbicide (1.33 lbs. ai/A S-metolachlor and 0.5 lb ai/A linuron) was applied at drag off on April 25. All plots were side-dressed with 50 lb N/A (UAN) on May 1. Irrigation (1 inch) was applied on May 9 and May 17. Round-white trials were harvested on July 10 and the red-skinned trial on July 11. Specific gravity was determined by the weight in air/weight in water method for all trials. Chip samples were held at ambient temperature and chipped on July 13.

Growing Conditions

Warm temperatures and moderately dry soil conditions at planting were followed by cooler weather and 3.25 inches of rainfall within the first two weeks after planting. Early conditions did not effect plant establishment of round-white clones but establishment of red-skinned clones was reduced to 72 to 81%. Warm, dry conditions prevailed in May with 19 days exceeding optimum temperature (77°F). Rainfall was more timely but maximum temperatures exceeded 77°F on 25 days in June. Cold, wet weather early in the season followed by hot, dry conditions starting within 60 days of planting was conducive to the development of hollow heart or internal heat necrosis (IHN) in susceptible clones.

Results

Round-White Trial. No entries exceeded the marketable yield of Superior (std). However that of Agate, Atlantic, B1870-17, NY121, and NYT2-2 were not significantly lower. Although the size distribution of Atlantic was similar to Superior, others yielded less in the over 3.25" category.

External tuber defects, particularly growth cracks were a serious problem with many entries, including Atlantic. B1880-6 and NY 121 were exceptions with no growth cracks. Appearance of NY121 was somewhat rough, similar to that of Superior. With late vine and tuber skin maturity, NY121 may have potential as a later-maturing fresh-market selection. Additional testing of NY121 is warranted. Agata was tested as an oblong, yellow-fleshed entry. Yield of Agata was lower than Superior with a greater percentage of small tubers. Flesh color was more cream than yellow. While incidence of internal heat necrosis (IHN) was low, the severity is a concern.

Chip Trial. Both marketable yield and percentage of tubers greater than 3.5" in diameter were greater for B0564-9 and NYU109-6 than Atlantic. However, specific gravity was noticeably lower for both numbered clones. Additional evaluation of AF1569-2 is warranted because of acceptable yield and attractive tubers with bright skin. The specific gravity is too low for chip stock. Grower trials of B0564-9 were discouraging: maturity was too early, yields were lower than Atlantic, specific gravity was unacceptably low and susceptibility to tuber rot was excessive.

Red-skinned Trial. Only Cherry Red, Chieftain, and Red LaSoda significantly exceeded marketable yield of Dark Red Norland. Tuber rot was a serious concern for Cherry Red, Redsen, Dark Red Norland, NorDonna and Dakota Rose. Growth cracks were also a concern with the notable exception of Mazama. This trial was repeated in the fall. Poor tuber set resulted in poor yields for all entries. However, C086218-2 exhibited moderate set and moderate size of purple-red tubers.

NE-184/National. See summary of Eastern Region Trial. The only notable entry was AF1758-7 with a marketable yield equal to Katahdin, attractive tubers with relatively smooth skin, and minimal defects. Of the national trial entries, NY112 exhibited high yield potential and attractive tubers free from external defects. Low specific gravity precludes use as chip stock. Although no IHN was found, 10% hollow heart is a concern. A90586-11 is a long-white clone with yield similar to Russet Norkotah but tubers were lumpy and unattractive with appreciable growth cracks.

Acknowledgments

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Virginia Table 1. Yield, marketable yield, percentage of yield by grade size distribution, specific gravity, and chip color of round-white trial grown for 105 days at Painter, Virginia, 2001.

Clone ¹	Yield >1-1/2" cwt/A	Marketable Yield		Size Distribution ²				Percentage Over		Specific Gravity ³	Chip Color ⁴
		cwt/A	Percentage of std	1	2	3	4	1.88"	2.5"		
Early-main season											
Agata	291	207	84	19	20	45	5	71	51	1.057	4.5
Atlantic	278	215	88	12	13	45	20	77	65	1.089	4
Superior (std)	286	245	100	8	15	48	23	85	71	1.072	4
Yukon Gold	213	181	74	11	12	47	25	84	72	1.078	—
AF1938-3	219	174	71	9	12	44	23	79	67	1.065	—
ARSW96-4654-1	247	182	74	25	31	41	1	74	43	1.082	—
B1752-5	211	165	67	14	19	52	7	78	59	1.076	—
B1806-8	214	165	67	22	24	45	6	75	51	1.080	3.5
B1826-1	250	141	58	12	12	35	11	57	46	1.068	—
B1870-3	284	191	78	11	13	35	18	66	53	1.058	4
B1870-17	302	209	85	14	13	42	13	69	55	1.064	4
B1871-1	241	186	76	17	22	46	9	76	54	1.066	—
B1880-6	241	186	76	20	26	41	8	76	49	1.077	—
NY121	259	199	81	21	25	41	10	77	51	1.079	3
NYT2-2	295	235	96	11	12	49	19	80	68	1.079	4
Waller Duncan	40	52									
(K=100, P=0.050)											

¹ Planted March 25, harvested July 9

² Size distribution 1=1.5-1.88", 2=1.88-2.5", 3=2.5-3.25", 4=>3.25".

³ Determined by weight in air/weight in water method.

⁴ Unreplicated samples, 3 days after harvest. 1-4 = acceptable, 5 = marginal, 6 or greater = unacceptable.

Virginia Table 2. Yield, marketable yield, percentage of yield by grade size distribution, specific gravity, and chip color of chip trial grown for 105 days at Painter, Virginia, 2001.

Clone ¹	Yield >1-1/2" cwt/A	Marketable Yield		Size Distribution ²					Percentage Over		Specific Gravity ³	Chip Color ⁴
		cwt/A	Percentage of std	By class (%)				1.88"	2.5"			
				1	2	3	4					
Atlantic	255	185	100	15	16	44	13	73	57	1.091	4	
Superior	225	186	101	11	14	50	18	82	68	1.070	4	
AF875-15	293	142	77	10	11	28	10	48	38	1.084	3	
AF1569-2	286	223	121	13	12	41	24	78	65	1.072	3.5	
AF1856-2	199	148	80	15	16	47	10	72	57	1.079	3.5	
AF2115-1	219	166	90	21	20	50	5	75	55	1.070	5	
AF2220-2	222	187	101	13	16	58	10	84	68	1.073	2	
B0564-8	261	214	116	17	17	51	14	81	65	1.081	3	
B0564-9	287	244	132	12	12	49	24	85	73	1.080	4	
B1884-9	239	169	91	16	17	42	11	71	54	1.077	2	
NY120	221	187	101	8	11	50	23	84	73	1.077	3	
NYU47-2	96	72	39	22	28	47	0	75	47	1.080	3.5	
NYU100-87	184	134	72	14	14	45	13	73	58	1.078	3.5	
NYU109-6	286	243	131	13	13	52	20	85	72	1.072	3	
Waller Duncan	56	52										
(K=100, P= 0.050)												

¹Planted March 25 harvested July 9

²Size distribution 1=1.5-1.88", 2=1.88-2.5", 3=2.5-3.25", 4=>3.25"

³Determined by weight in air/weight in water method.

⁴Unreplicated samples, 3 days after harvest. 1-4 = acceptable, 5 = marginal, 6 or greater = unacceptable.

Virginia Table 3. Yield, marketable yield, percentage of yield by grade size distribution and specific gravity of red-skinned trial grown for 106 days at Painter, Virginia, 2001.

Clone ¹	Yield >1-1/2" cwt/A	Marketable Yield		Size Distribution ²					Percentage Over		Specific Gravity ³
		cwt/A	Percentage of std	By class (%)				1.88"	2.5"		
				1	2	3	4				
Cherry Red	239	186	188	13	19	49	3		71	52	1.073
Chieftain	270	179	181	21	24	37	5		65	41	1.069
Dakota Rose	144	99	100	22	31	36	1		68	36	1.055
Dark Red Norland (std)	132	99	100	14	23	43	9		74	52	1.055
Durango Red	200	127	128	24	22	32	6		64	42	1.062
Mazama	178	118	119	29	31	34	2		67	36	1.063
NorDonna	229	154	156	25	27	38	2		66	40	1.060
Red LaSoda #10	269	203	205	13	18	48	8		75	57	1.061
Red Ruby	207	114	116	38	39	16	0		55	16	1.055
Redsen	145	97	98	20	23	39	5		67	45	1.061
Rideaux	180	108	109	27	20	33	3		56	36	1.068
B1521-2	141	78	79	42	28	27	0		55	27	1.063
B1758-3	218	146	147	18	21	42	2		64	43	1.071
B1758-4	249	128	129	19	18	31	3		51	34	1.068
B1816-5	210	128	129	30	27	30	2		58	32	1.069
B1952-2	198	125	126	14	16	43	3		62	46	1.075
Waller Duncan	88	77									
(K=100, P=0.050)											

¹ Planted March 25 harvested July 10

² Size distribution 1= 1.5-1.88", 2=1.88-2.5", 3=2.5-3.25", 4=>3.25".

³ Determined by weight in air/weight in water method.

Virginia Table 4. Plant and tuber characteristics and tuber defects for round white, red-skinned and russet/long white clones grown at Painter, Virginia, 2001.

Clone	Vine ¹				Tuber			Tuber Defects ¹				Heat Necrosis # of Tubers	Rating	
	Size	Maturity	Pollution	Shape	Appear	Skin	Percent Defects	Sun burn	Second Growth	Crack				
Round-White - early and main season														
Agata	4	3	9	5	7	7	10	6	6	6	2	6		
Atlantic	7	8	9	2	7	5	12	9	9	4	4	7		
Superior	6	6	9	4	5	8	7	9	9	6	0	9		
Yukon Gold	8	8	9	2	5	5	5	9	9	6	0	9		
AF1938-3	7	6	9	4	5	5	12	9	6	6	0	9		
ARSW96-4654-1	7	6	9	2	6	6	2	9	9	8	5	6		
B1752-5	5	6	9	2	7	5	8	9	6	6	0	9		
B1806-8	7	5	9	3	6	6	3	9	9	7	0	9		
B1826-1	9	9	9	3	6	6	32	7	6	4	0	9		
B1870-3	4	5	9	2	7	8	23	7	6	5	0	9		
B1870-17	6	6	9	3	7	7	17	9	9	4	0	9		
B1871-1	5	5	8	3	7	6	7	9	7	6	0	9		
B1880-6	5	5	9	3	5	5	4	7	9	9	0	9		
NY121	5	4	8	2	5	5	9	9	7	9	0	9		
NYT2-2	7	7	9	4	6	4	2	6	9	7	0	9		
Round-White - chip trial														
Atlantic	5	6	9	2	7	5	12	9	9	4	1	7		
Superior	5	5	9	4	5	7	7	9	9	7	0	9		
AF875-15	6	4	8	3	6	7	42	9	9	2	0	9		
AF1569-2	6	7	9	2	7	5	9	9	8	7	0	9		
AF1856-1	8	8	8	3	6	7	12	9	6	6	2	8		
AF2220-2	6	5	8	3	5	5	3	9	9	7	0	9		
AF2115-1	7	7	7	4	5	6	3	9	8	8	0	9		
B0564-8	6	5	8	2	7	6	2	9	9	8	0	9		
B0564-9	5	5	9	3	7	5	3	9	8	8	0	9		
B1884-9	6	6	9	3	7	5	13	9	9	6	0	9		
NY120	8	7	8	3	5	4	8	9	9	9	0	9		
NYU47-2	5	6	8	2	5	6	3	9	6	8	0	9		
NYU4100-87	6	6	9	4	4	5	14	9	9	5	0	9		
NYU109-6	9	7	9	2	7	7	2	9	9	7	0	9		

Virginia Table 4. Continued.

Clone	Tuber Defects ¹														
	Vine ¹					Tuber					Heat Necrosis				
	Size	Maturity		Pollution	Shape	Appear.	Skin		Percent Defects	Sprouts	Sun burn	Second Growth	Growth Crack	Tubers	Rating
		Maturity	Defects				Maturity	Defects							
Red-skinned Trial															
Cherry Red	6	6	9	2	7	8	10	9	9	7	6	6	1	6	
Chieftain	7	6	9	2	6	5	13	9	9	9	7	5	3	7	
Dakota Rose	4	4	8	4	5	6	10	9	9	9	9	7	0	9	
Dark Red Norland	4	3	4	3	4	8	11	9	9	9	9	5	0	9	
Durango Red	8	8	9	3	6	6	13	9	9	9	7	6	0	9	
Mazama	5	4	9	4	6	6	4	9	9	9	9	9	0	9	
NorDonna	7	6	9	2	5	7	9	9	9	9	9	6	0	9	
Red La Soda #10	5	5	9	3	5	7	12	9	9	9	9	6	0	9	
Red Ruby	6	5	9	4	5	5	7	9	9	9	5	7	0	9	
Redsen	5	4	9	3	5	7	12	9	9	9	9	9	0	9	
Rideaux	6	5	9	3	4	5	15	9	9	9	6	5	0	9	
B1521-2	8	7	9	2	5	4	2	9	9	9	9	8	0	9	
B1758-3	8	7	8	3	5	5	16	9	9	9	9	5	0	9	
B1758-4	8	7	8	3	7	5	30	9	9	9	9	5	0	9	
B1816-5	5	5	9	3	4	5	11	9	9	9	6	4	0	9	
B1952-2	7	8	8	3	5	5	23	9	9	9	9	4	0	9	
Russet or long white															
Russet Norkodah	6	5	9	6	6	7	4	9	9	9	9	8	0	9	
A90586-11	6	6	9	6	5	5	21	9	9	6	5	5	0	9	

¹ See Eastern Region rating scale

WISCONSIN

Horia Groza, Bryan Bowen, and
Jiming Jiang

Methods and Conditions

The Wisconsin advanced selections are tested in the fifth and sixth field generations in replicated breeding trials at two locations. After being included for two other years in the Wisconsin State field trial system, the best lines are tested for three years in the North Central Regional Trial (NCRT) and 1-2 chipping lines are tested in the Snack Food Trial. At the same time as the Wisconsin State replicated trials, unreplicated demonstration trials are conducted with Wisconsin seed and consumption growers.

The replicated breeding trials were conducted on irrigated sandy soil in Rhinelander, under shorter and colder season conditions, and Hancock, under longer and warmer season conditions. The 2001 season was warmer and more humid than normal in Wisconsin Central Sands, which represents the main production area of the state. The heat cumulative units in Hancock were 318, 850, 1628, 2611, 3553 and 4091 in April, May, June, July, August and September vs. the normal figures of 172, 723, 1520, 2467, 3350 and 3955, respectively. The cumulative figures of rainfall in Hancock were 3.5, 10.7, 14.8, 17.6, 22.1 and 26.7 inches the same months vs. the normal figures of 2.9, 6.4, 10.4, 14.4, 18.3 and 22.0 inches, respectively. As a consequence, a short epidemic of late blight started in June but was stopped, a higher incidence of common scab was noticed (dry weather at tuber set) and also a high incidence of tuber rot (dry rot, pink rot, pink eye).

The breeding trials were planted in a randomized block design with single row plots of 20 hills/plot, 3 replications and 12" x 36" spacing. Planting, vine killing and harvest dates: (1) in Rhinelander - 8 May, 17 August and 29 August; (2) in Hancock - 24 April, 22 August and 10 September, respectively. The NCRT was conducted in Hancock under exactly the same conditions and dates as the previously mentioned Hancock trials but in randomized block design of four replications.

The yield was graded into A size (>1 7/8" diameter), B size (<1 7/8") and culls. Vigor at the second blooming, vine maturity, early blight at the beginning of August and common scab on tubers were scored on a 1-9 scale. (1 = very weak, very early or very susceptible, respectively). The tubers were described for shape (1=round, 5=oval, 9=long) and shape uniformity (9=very uniform). Five tubers larger than 8 oz. were cut lengthwise for scoring the internal defects. A general preference score for tuber external and internal appearance has been used (1=undesirable, 2=acceptable, 3=good, 4=very good). Specific gravity was determined by measuring the weight in air and water and the table values are expressed as $(SG - 1) \times 1000$. Chip color was scored for five tubers/plot, from 1 to 10, according to the PCII Color Chart (where 1 is the lightest and 4 is the maximum accepted). The frying time interval lasted until "the bubbling" stopped (this way one measures the reducing sugars factor and eliminates the solids factor). The chip color for the trials including the advanced selections was determined at reversion (a month storage at 55°F) and after three and six month storage at 40°F with and without reconditioning (two weeks at 65°F). The chip color of the North Central Regional Trial entries was

measured after one month at 55°F and three months at 40°F, with and without reconditioning. For all the 40°F storage treatments the tubers underwent a prior 20 day period of healing and gradual cooling treatment from 60°F to 40°F.

Characteristics of experimental lines and standards in NCRT, Hancock 2001

Standards:

Atlantic - medium maturity, heavy netted skin, round-oval, uniform big tuber size, deep bud end, large lenticels, low incidence of pitted scab, good yielding capacity, hollow heart, medium-high specific gravity, chip color at reversion at the limit of acceptance and not acceptable after three months cold (40°F) storage, medium-high incidence of hollow heart, medium incidence of early blight.

NorValley - medium maturity, light smooth skin, medium-shallow eyes, variable tuber size but in the big size range, round-oval with a trend to pear shape, pointed bud end, good yielding capacity, vascular discoloration, black scurf, soft rot, medium-low specific gravity, medium-good chip color at reversion and unacceptable color after three months, medium incidence of early blight. It ranked third among the chipping entries of the regional trial.

Snowden - medium-late maturity, light netted skin, round-oval tubers, medium-deep eyes, uniform medium tuber size, low frequency of shallow scab, Rhizoctonia, good yielding capacity, internal brown spot, medium-high specific gravity, chip color at reversion at the limit of acceptance, unacceptable chip color after three months of cold storage (40°F) but the best score

among the chipping entries, especially after reconditioning, very low incidence of early blight.

Dark Red Norland - medium-early maturity, medium red color, buckskin, very intense fading of color, oval-round tubers, big size tubers, good early yielding capacity, highly susceptible to early blight, greening, excellent internal quality, medium resistance to common scab.

Red Pontiac - medium-late maturity, medium-dark red skin, buckskin, patches of fading color, deep eyes, rough tuber shape, very deep eyes, variable tuber size up to 12 oz. tubers, intense skinning at harvest, malformed tubers, 9% scab incidence, excellent yielding capacity, low incidence of early blight.

Russet Norkotah - medium-early maturity, medium-dark/dark russet, excellent long blocky tuber shape (little roundish), high uniformity of shape, variable size, medium-small tubers, medium good yielding capacity, good internal quality (except some vascular discoloration), very susceptible to early blight. It ranked second among the russet entries in the regional trial.

Russet Burbank - medium-late maturity, light russet, big long tubers, variable shape, 10% malformation, medium-good yield capacity, low incidence of internal brown spot, medium-high specific gravity, black scurf, bad fry color at reversion and after cold storage, no scab, medium resistance to early blight.

Experimental lines

A 90586-11 rus - medium-late maturity, very light russet, russet patches, big long tubers, 12% malformation, 14% greening, 4%

growth cracks, good yield capacity, good specific gravity, better fry color at reversion than Russet Burbank, some vascular discoloration, medium resistance to early blight, low incidence of scab.

B0766-3 - late chipping line, round-oval, netted skin, good size, very attractive appearance, medium-high yielding capacity, medium specific gravity, good internal tuber quality, scab, chip color after three month cold storage and reconditioning as good as Snowden, good resistance to early blight. It ranked first among all the chipping entries.

CV 89023-2 R - medium vine maturity, medium-dark red skin, oval tubers of non-attractive shape (pointed end, pear shape), low percentage of US #1's, some skinning problems, medium good yields (close to Dark Red Norland), very high specific gravity, good internal quality, medium susceptibility to early blight, very low incidence of scab.

Michigan Purple - medium-late maturity, medium-dark purple skin of a very attractive initial color that fades in time, deep eyes, oval, big tubers, skinning, good yielding capacity, medium-high specific gravity, green tubers, low percentage of vascular discoloration, medium early blight intensity.

MN 18365 R - medium vine maturity, medium-dark red skin (that can sometimes fade), round-oval medium sized tubers, good skin set, high tuber shape uniformity, attractive appearance, good yields, 4% vascular discoloration, good external quality (except greening), medium susceptible to early blight, 8% tubers had scab.

MN 18747 rus - medium-early vine maturity, extremely light russet

skin (can be considered a long white potato), round-oval/oval tubers, very smooth, good size, good skin set, medium-good yielding capacity, medium specific gravity, fairly good external and internal tuber quality, outstandingly good frying color, susceptible to early blight, no scab.

MN 19157 - medium vine maturity, chipping line, medium sized, round-oval tubers, smooth, medium-low yielding capacity, good specific gravity, some internal brown spot and vascular discoloration, low incidence of scab, fairly susceptible to early blight. It ranked second among the chipping entries of the trial.

MN 19315 - medium/medium-early maturity, chipping line, small oval tubers, white skin with netting patches, medium-low yielding capacity, very low percentage of US #1's (55%) due to the size, high specific gravity, good chip color at reversion, scab, green, rot, very susceptible to early blight.

MSE 192-8 rus - medium/medium-early maturity, dark russet, long blocky tubers, attractive tuber appearance, uniform tuber shape, low yielding capacity, low specific gravity, rather good external and internal tuber quality, medium susceptibility to early blight. No scab was noticed. It ranked first among the russet entries of the trial.

MSF 099-3 - late maturity, oval tubers, chipping line, medium-large tubers, medium good yielding capacity, good specific gravity, good chip color at reversion, high percentage of internal brown spot, black scurf, scab, green, second growth, medium resistance to early blight.

MSF 373-8 - late maturity, round-oval rough tubers of very large

size, good yielding capacity, medium specific gravity, greening, good internal quality, scab, resistant to early blight.

ND 3196-1 R - medium/medium-early maturity, medium-dark red skin, buck skin, deep eyes, very much skinning at harvest, medium sized round-oval tubers, medium good yielding capacity, medium-high specific gravity, some incidence of hollow heart, susceptible to early blight, 5% scab. It ranked second among the red entries.

ND 5084-3 R - late maturity, excellent dark red skin color, smooth, medium size oval tubers, attractive appearance, some russetting and buck skin, earliness, very high yielding capacity, low specific gravity, extremely high percentage of internal brown spot (25%), good resistance to early blight, low incidence of scab. It ranked third among the red entries.

NY 112 - medium-late chipping line, big vigor of vines, oval (pear shape trend), smooth, large size tubers with netted skin, very good yielding capacity, medium specific gravity, good chip color at reversion, high percentage of internal brown spot and vascular discoloration, greening, low incidence of scab.

V 0123-25 - medium-early chipping line, smooth, round-oval/oval tubers of medium-small size, good skin set, medium-low yielding capacity, good specific gravity, marginal chip color at reversion, greening, susceptible to early blight.

V 0168-3 rus - medium-early maturity, medium russet skin, oval tubers (too round and short), medium size tubers, medium yielding capacity, medium-low specific gravity, good external and internal quality, no scab, very susceptible to early blight.

V 0299-4 R - medium vine maturity, excellent red color (dark red skin), oval, blocky tubers, medium size, medium-good yielding capacity (close to Dark Red Norland), medium-high specific gravity, medium incidence of internal brown spot, medium-high resistance to early blight, low incidence of scab. It ranked in first place among the red entries.

W 1201 - late chipping line, round-oval large tubers, netted skin, medium-deep eyes, good yielding capacity, medium-good specific gravity, good chip color at reversion, low incidence of scab, rot, medium resistance to early blight.

W 1386 - medium-late chipping line, light netting, smooth, round-oval slightly flat tubers of variable size, black scurf, bruise, excellent skin set, very good yielding capacity, medium specific gravity, vascular discoloration, low incidence of scab, medium resistance to early blight.

W 1431 - medium-late chipping line, netting, very smooth, round-oval, flat tubers, large size, uniform tuber shape, low set, good yielding capacity, good specific gravity, good chip color at reversion, better chip color after three month cold storage than all standards, good internal quality, no scab, resistant to Verticillium wilt, medium resistance to early blight.

W 1836-3 rus - medium-late maturity, medium-dark russet skin, long blocky tubers with a trend to pointed ends, large tuber size, very good yield capacity, medium specific gravity, low incidence of internal brown spot, low incidence of scab, resistant to Verticillium wilt. Ranked third for tuber quality in the russet group, after MSE 192-8 rus and Russet Norkotah.

Other varieties

Amandine - new release of Germicopa (France), medium maturity, fresh market potato, white smooth skin, very specific tuber shape (long slightly curved at one end), very attractive and unique appearance, medium tuber size, medium-low yielding capacity, earliness, excellent cooking taste, medium-high incidence of internal brown spot.

Cynthia - new release of Germicopa (France), medium-late maturity, fresh market potato, oval, large tubers, pointed ends, off shape, greening, medium-low yields, medium-low specific gravity, fairly good internal quality, rot, no scab, medium resistance to early blight.

Dakota Rose - medium-early maturity, medium-dark red color with a large variation of color intensity, round-oval/oval, good sized tubers, not attractive appearance, medium-low yields, low specific gravity, good internal quality, high incidence of scab, susceptible to early blight.

Sandy - new release of Germicopa (France), very late maturity, chipping variety, white skin, round tubers with deep eyes, good skin set, no scab, excellent yielding capacity, very high specific gravity, excellent internal tuber quality, a chipping variety directly out of the field, very characteristic small dark green leaflets, highly resistant to early blight.

Sylvia - new release of Germicopa (France), medium-late maturity, fresh market potato, long white tubers, good size, attractive appearance, good yielding capacity, medium-low specific gravity, some internal brown spots, scab, medium resistance to early blight.

Wisconsin Table 1. Two year performance of three new chipping advanced selections in two locations: Rhinelander (100 days) and Hancock (120 days).

Cultivar	Yield		Hancock							
	Per site									
			Vines		Tubers			Chip Color		
	Rhi	Han								
	US#1	US#1	VMt	EBt	SkG	Pref	SpGv	Rev	3mD	3mR
Atlantic	376	447	6.1	7.0	9.0	2.2	87	4.4	8.3	8.1
Snowden	281	537	5.6	6.2	9.0	1.9	83	3.6	7.4	7.1
W 2128-8	300	568	6.1	7.1	5.2	1.7	90	3.2	4.9	5.4
W 2133-1	325	617	5.7	6.0	8.0	2.4	79	4.3	8.0	7.4
W 2143-1	404	582	6.3	7.2	9.0	2.1	86	5.0	7.0	7.5

Yield = cwt/A; VMt: Vine maturity (1=early, 9=late); EBt: Early blight (1=very susceptible, 9=none); Skg: Skinning (9=no skinning); Pref: Preference, general rating (1=not desired, 2=acceptable, 3=good, 4=very good); SpGv: Specific Gravity -1×1000 ; Chip Color: Rev = Reversion (1 month storage at 55°F), 3m = 3 month storage at 40°F (D=direct, R = reconditioned 14 days at 65°F).

Wisconsin Table 2. Two year performance of one new russet and one new red advanced selections in two locations: Rhinelander (100 days) and Hancock (120 days).

Cultivar	Yield		Hancock							
	Rhi	Han								
	US#1	US#1	VMt	EBt	SkG	TbU	Pref	Rev	SpGv	IntD
Goldrush	278	374	5.4	4.9	8.7	7.2	2.0	7.1	70	14
W2371-1rus	391	510	6.1	6.6	9.0	8.2	2.2	7.1	80	10
DRNorland	322	450	4.4	4.4	8.4	7.4	1.7	7.3	70	0
W2275-9R	302	499	5.9	6.7	8.8	7.7	2.2	7.6	70	17

Yield = cwt/A; VMt: Vine maturity (1=early, 9=late); EBt: Early blight (1=very susceptible, 9=none); Skg: Skinning (9 = no skinning); TbU: Tuber shape uniformity (9=very uniform); Pref: Preference, general rating (1=not desired, 2=acceptable, 3=good, 4=very good); Rev: Reversion (1 month storage at 55°F), SpGv: Specific Gravity -1×1000 ; IntD: Internal Defects % (Hollow Heart, Internal Brown Spot, Vascular Discoloration). Visual scores in CPII scale (1=light, 10=dark).

Wisconsin Table 3. Advanced Selection Trial 1, Rhinelander 2001 (101 days).
Excerpt from a 50 entry trial.

Cultivar	Cwt/A		Vines			Tubers				
	Tot	A's	VMt	Vig	EBt	Skg	TbS	TbU	Scb	Pref
Atlantic	409	355	6.0	6.2	7.7	8.7	6.7	9.0	8.4	2.2
Dakota Pearl	317	267	4.7	4.7	6.0	9.0	6.0	9.0	9.0	2.2
DR Norland	330	283	4.5	5.3	5.0	9.0	6.5	9.0	9.0	2.5
Goldrush	307	246	4.8	6.5	4.7	9.0	7.3	8.0	8.9	2.1
Norvalley	393	322	5.0	5.5	6.3	8.9	6.7	9.0	7.6	2.0
R. Burbank	383	303	6.2	5.8	8.2	7.8	7.0	7.0	9.0	2.0
Snowden	330	265	5.3	5.3	6.0	9.0	5.8	9.0	8.5	2.1
W 2256-5	549	497	5.5	5.7	7.7	6.3	7.0	8.7	7.9	2.2
W 2324-4	418	335	6.3	5.8	7.5	6.0	3.7	8.7	8.8	1.8
W 2257-3	409	325	6.7	8.0	6.5	8.9	7.0	8.3	8.3	2.2
W 2379-5	404	352	6.7	7.2	8.7	7.5	7.3	8.7	8.2	2.1
W 2325-1	404	345	6.5	6.3	7.7	6.6	6.7	8.7	9.0	2.0
W 2285-5	400	358	6.0	5.8	7.7	8.9	7.0	8.3	8.6	2.2
W 2358-1	390	312	6.7	6.7	8.3	7.8	5.7	8.0	8.2	1.9
W 2327-4	387	335	5.7	5.8	6.7	6.0	7.0	8.3	7.3	1.7
W 2265-25	381	301	7.5	7.2	9.0	5.7	6.3	8.7	7.9	2.0
W 2324-6	365	228	5.7	5.3	5.7	6.7	5.7	9.0	8.2	2.0
W 2319-5	356	314	5.8	6.0	7.3	7.3	6.0	9.0	8.3	2.2
W 2379-4	354	306	5.7	5.7	7.5	8.0	6.7	7.3	8.9	2.0
W 2310-4	353	299	5.5	5.5	6.8	8.9	5.7	9.0	7.5	2.2
W 2384-3	348	190	4.8	5.5	5.3	9.0	7.3	9.0	9.0	1.7
W 2265-4	347	310	4.8	4.7	5.7	8.6	7.0	8.7	8.8	2.0
W 2249-4rus	433	349	5.3	5.2	6.7	9.0	6.3	8.5	8.7	2.1
W 2250-3rus	394	279	7.2	7.2	9.0	7.3	5.5	7.3	8.0	1.6
W 2279-4R	478	419	6.2	5.8	8.0	7.2	6.7	9.0	7.9	2.0
W 2303-4R	456	392	6.0	5.7	7.2	6.7	7.0	8.7	8.7	2.2
W 2303-8R	423	388	5.7	5.7	6.2	6.9	7.0	9.0	8.2	2.1
Avg chip*	348	291	5.7	5.9	6.9	7.6	6.5	8.5	8.3	2.0
Avg rus	338	239	6.1	6.3	7.5	8.4	5.4	8.0	8.4	1.8
Avg red	345	272	5.4	5.5	6.1	8.0	6.0	8.7	8.4	2.1
Average	346	282	5.7	5.9	6.8	7.7	6.3	8.5	8.3	2.0

Tot = Total yield, A's = A size (>1 7/8" tubers) yield; VMt: Vine maturity (1=early, 9=late); Vig: Vine vigor (1=weak, 9=vigorous); EBt: Early blight (1=very susceptible, 9=none); Skg: Skinning (9=no skinning); TbS: Tuber shape (1=round, 9=long); TbU: Tuber shape uniformity (9=very uniform); Scb: Scab (1=very susceptible, 9=none); Pref: Preference, general rating (1=not desired, 2=acceptable, 3=good, 4=very good).

* Averages are for the whole initial trial of 50 entries.

Wisconsin Table 4. Advanced Selection Trial 1, Rhinelander 2001 (101 days).
Excerpt from a 50 entry trial.

Cultivar	Int.Def.%			SpGv	Chip Color				
	HH	IBS	VD		Rev	3mD	3mR	6mD	6mR
Atlantic	73	0	0	88	3.1	7.1	6.9	9.0	8.1
Dakota Pearl	0	0	27	81	2.8	3.6	3.4	4.6	4.0
DR Norland	0	0	20	66	5.0	9.9	9.5	9.9	9.9
Goldrush	0	0	13	68	6.7	9.9	9.6	9.9	9.9
Norvalley	0	0	7	79	2.9	4.9	4.4	6.7	6.0
R.Burbank	7	0	7	75	5.8	8.7	8.4	9.9	9.7
Snowden	7	0	33	81	2.7	6.0	4.9	5.6	3.2
W 2256-5	33	0	7	82	3.0	6.2	5.9	8.5	7.5
W 2324-4	0	7	20	76	3.3	7.1	6.5	9.0	7.4
W 2257-3	27	0	0	81	3.5	8.2	8.1	9.9	9.4
W 2379-5	40	0	27	77	2.9	6.5	5.4	9.1	7.1
W 2325-1	0	7	20	77	2.9	6.1	4.2	5.7	5.0
W 2285-5	0	0	13	80	2.9	4.6	4.0	5.9	6.8
W 2358-1	0	0	7	81	3.0	5.6	5.1	7.0	5.6
W 2327-4	7	0	7	89	2.6	4.4	3.4	6.5	3.8
W 2265-25	0	0	7	90	3.1	6.3	5.9	8.5	6.9
W 2324-6	7	13	20	82	3.5	9.0	6.9	9.3	7.2
W 2319-5	7	0	0	78	3.0	5.1	4.4	5.2	3.1
W 2379-4	0	0	27	83	3.2	6.9	5.9	8.3	7.2
W 2310-4	13	13	0	86	2.7	6.2	4.6	8.1	5.7
W 2384-3	13	0	13	70	3.1	7.0	7.0	8.7	8.8
W 2265-4	0	0	27	84	3.1	7.5	7.4	9.9	9.0
W 2249-4rus	0	0	13	75	4.5	7.6	7.1	8.8	7.9
W 2250-3rus	0	0	33	79	7.1	9.1	8.3	9.9	9.5
W 2279-4R	13	0	0	69	4.4	7.9	7.4	9.1	8.4
W 2303-4R	0	0	7	66	5.4	9.9	9.5	9.9	9.9
W 2303-8R	0	0	1	73	5.3	9.0	8.7	9.9	9.9
Avg chips*	11	2	15	81	3.0	6.0	5.3	7.5	6.3
Avg rus	3	0	15	77	6.0	8.6	8.1	9.6	9.2
Avg red	1	0	10	70	4.8	9.0	8.7	9.9	9.5
Average	8	2	14	79	3.6	6.8	6.2	8.1	7.2

Int.Def.%, Internal Defects: HH=Hollow heart (%); IBS =Internal Brown Spot (%); VD=Vascular discoloration (%). SpGv: Specific Gravity -1 x 1000; Chip Color: Rev = Reversion, 3m = 3 month storage at 40°F(D=direct, R = reconditioned 14 days at 65°F), 6m = 6 month storage at 40°F (D=direct, R = reconditioned 14 days at 65°F). Visual scores in CPII scale (1=light, 10=dark).

* Averages are for the whole initial trial of 50 entries.

Wisconsin Table 5. Advanced Selection Trial 2, Rhinelander 2001 (101 days).

Cultivar	Cwt/A		Vines			Tubers				
	Tot	A's	VMt	Vig	EBt	Skg	TbS	TbU	Scb	Pref
Atlantic	418	376	6.2	6.5	7.3	8.8	6.5	8.7	8.9	2.1
DRNorland	360	322	5.0	5.3	5.3	9.0	7.2	8.3	9.0	2.2
Dak.Pearl	337	302	4.8	5.3	6.0	9.0	6.0	9.0	8.7	2.3
Goldrush	319	278	6.3	5.5	5.7	9.0	7.7	6.3	9.0	1.8
Norvalley	447	387	5.5	5.7	7.2	9.0	6.2	9.0	8.2	2.2
Snowden	341	281	5.5	5.8	6.3	8.7	5.3	8.3	8.3	2.0
W1201	482	438	6.3	6.3	7.8	8.9	7.3	8.7	9.0	2.1
W2238-1	455	389	6.2	6.2	8.3	8.2	6.8	7.7	7.8	1.6
W2143-1	453	404	6.3	6.2	8.3	5.3	7.0	8.5	9.0	1.8
W2154-1	443	388	5.7	5.0	6.3	8.7	6.8	8.7	6.5	1.7
W2371-1rus	434	391	5.7	6.3	8.7	8.7	6.8	8.3	7.8	2.1
W2275-3R	408	319	6.5	5.7	6.8	8.7	5.7	8.7	8.9	2.1
W2192-2	400	360	6.5	6.2	7.3	8.5	7.7	8.0	8.6	2.0
W2133-1	387	325	7.0	6.7	8.7	4.7	6.2	8.0	8.7	2.0
W2148-2	381	323	5.7	5.5	6.5	7.9	6.0	8.3	8.8	2.0
W2169-1R	367	329	6.0	5.3	6.5	8.7	7.3	8.9	8.9	2.2
W2275-9R	363	302	6.5	6.3	7.2	6.7	6.5	8.0	9.0	2.0
W2114-5	361	323	5.8	5.8	7.0	7.0	6.8	9.0	8.9	2.1
W2145-6	342	266	6.2	5.5	7.2	8.3	4.3	8.0	8.9	2.0
W2128-8	341	300	7.3	6.7	8.3	4.7	7.3	7.3	8.9	1.3
W2166-3	325	278	7.3	6.7	8.7	7.0	6.7	7.3	8.8	2.0
W2203-2	299	258	5.0	5.8	4.7	9.0	6.5	9.0	9.0	2.4
W2233-2	292	230	5.5	5.7	6.0	7.2	7.7	7.7	7.2	1.8
W2123-2	290	259	5.2	6.0	5.3	8.7	7.2	8.3	8.1	2.0
W2145-11	288	228	5.8	5.5	7.5	8.0	6.2	8.3	8.6	1.3
W2126-1	271	227	4.7	5.2	6.0	8.0	5.0	9.0	8.9	2.0
W2132-1	267	187	6.5	6.3	7.5	7.0	4.7	8.3	8.3	2.0
W2132-2	244	184	7.2	6.5	9.0	7.0	5.7	7.7	8.3	2.0
Avg chips*	358	306	5.9	5.9	7.1	7.7	8.5	8.3	8.5	1.9
Avg rus	376	334	6.0	5.9	7.2	8.8	7.3	7.3	8.4	2.0
Avg red	350	287	6.0	5.7	6.7	9.0	6.5	8.1	9.0	2.1
Average	358	305	6.0	5.9	7.0	7.9	6.5	8.2	8.6	2.0

Tot = Total yield, A's = A size (>1 7/8" tubers) yield; VMt: Vine maturity (1=early, 9=late); Vig: Vine vigor (1=weak, 9=vigorous); EBt: Early blight (1=very susceptible, 9=none); Skg: Skinning (9 = no skinning); TbS: Tuber shape (1=round, 9=long); TbU: Tuber shape uniformity (9=very uniform); Scb: Scab (1=very susceptible, 9=none); Pref: Preference, general rating (1=not desired, 2=acceptable, 3=good, 4=very good).

* Averages are for the whole initial trial of 30 entries.

Wisconsin Table 6. Advanced Selection Trial 2, Rhinelander 2001 (101 days).

Cultivar	Int.Def.%			SpGv	Chip Color				
	HH	IBS	VD		Rev	3mD	3mR	6mD	6mR
Atlantic	53	0	0	89	3.3	6.5	6.5	9.5	6.8
DRNorland	0	0	0	69	6.1	9.9	9.9	9.9	9.9
Dak.Pearl	0	0	0	86	2.7	3.8	3.3	5.3	4.2
Goldrush	0	0	0	71	7.5	9.9	9.9	9.9	9.8
Norvalley	7	0	0	82	2.8	6.0	4.8	6.3	5.4
Snowden	0	0	7	90	3.0	6.2	4.3	6.1	3.4
W1201	0	0	1	92	3.2	6.1	5.4	8.9	7.1
W2238-1	0	0	0	78	4.1	8.4	8.2	9.9	8.4
W2143-1	10	0	1	85	3.6	4.8	3.5	6.9	6.6
W2154-1	7	0	1	88	2.3	3.3	3.0	4.1	3.1
W2371-1rus	7	0	0	79	6.7	8.7	8.5	9.9	9.3
W2275-3R	0	0	0	74	4.3	8.2	9.0	9.7	8.8
W2192-2	7	0	0	77	3.8	5.8	5.1	7.1	6.8
W2133-1	10	0	0	82	3.4	6.0	4.1	6.0	3.4
W2148-2	0	0	1	83	3.0	7.6	7.3	9.0	8.7
W2169-1R	0	0	1	77	6.5	9.3	9.8	9.9	9.9
W2275-9R	0	0	1	77	6.4	9.9	9.9	9.9	9.9
W2114-5	0	0	0	85	2.7	5.7	5.2	7.4	6.0
W2145-6	0	0	0	91	3.1	6.4	4.3	7.0	3.6
W2128-8	0	0	0	92	3.0	4.3	3.6	6.3	4.6
W2166-3	0	0	0	83	3.2	7.8	7.4	9.4	7.6
W2203-2	0	1	0	96	2.6	5.7	4.3	8.3	5.3
W2233-2	0	0	0	79	3.0	6.1	5.1	7.4	4.9
W2123-2	0	0	1	90	3.1	7.7	7.1	9.5	6.9
W2145-11	7	0	0	91	2.8	5.5	4.3	6.2	3.2
W2126-1	0	0	0	92	2.5	5.4	4.1	7.9	5.3
W2132-1	0	0	0	92	3.1	5.9	5.2	7.9	5.7
W2132-2	0	0	1	85	3.3	7.3	7.0	8.8	6.0
Avg chip*	4.9	0.0	0.5	86	3.1	6.1	5.1	7.6	5.7
Avg red	0.0	0.0	0.5	74	6.0	9.4	5.4	7.9	7.8
Avg rus	3.3	0.0	0.2	75	7.1	9.3	3.6	9.9	9.6
Average	4.0	0.0	0.5	83	3.8	6.9	5.0	7.8	6.3

Int.Def.%, Internal Defects: HH=Hollow heart (%); IBS =Internal Brown Spot (%); VD=Vascular discoloration (%). SpGv: Specific Gravity -1 x 1000; Chip Color: Rev = Reversion, 3m = 3 month storage at 40°F (D=direct, R= reconditioned 14 days at 65°F), 6m = 6 month storage at 40°F (D=direct, R = reconditioned 14 days at 65°F). Visual scores in CPII scale (1=light, 10=dark).

* Averages are for the whole initial trial of 30 entries.

Wisconsin Table 7. Advanced Selection Trial 1, Hancock, 2001 (121 days).
Excerpt from a 50 entry trial.

Cultivar	Yield				Vines			Tubers		
	Tot	A's	C's	%As	VMt	Vig	EBt	Skg	TbU	Pref
Atlantic	527	460	31.0	87.3	5.0	5.5	5.3	8.3	7.3	2.0
Dak.Pearl	435	397	26.1	91.2	4.3	5.3	4.0	9.0	9.0	2.4
DRNorland	381	333	13.5	87.4	3.7	4.7	2.3	8.3	8.0	1.9
Goldrush	514	441	47.0	85.8	5.5	6.2	4.7	8.7	7.3	1.9
Norvalley	587	507	43.4	86.3	5.3	5.7	4.3	8.7	7.3	2.0
RBurbank	475	310	88.0	65.2	6.2	6.0	6.5	7.7	6.7	1.7
Snowden	598	534	28.3	89.2	6.3	6.2	6.5	8.7	7.7	2.0
W2265-25	745	666	43.6	89.5	7.0	6.8	7.3	8.0	8.0	2.1
W2325-1	702	629	49.4	89.5	6.2	6.5	6.3	8.7	8.0	2.0
W2358-1	679	460	16.5	67.8	5.7	5.8	5.7	9.0	7.7	1.2
W2279-4R	658	569	48.6	86.5	5.8	5.7	5.7	7.9	8.2	2.1
W2310-11	635	551	38.3	86.8	5.8	5.8	6.8	8.9	8.0	2.1
W2256-5	629	573	35.0	91.2	7.0	6.0	6.7	8.6	7.3	2.0
W2319-5	613	561	27.0	91.7	5.7	5.7	5.0	9.0	8.7	2.2
W2363-5	609	548	64.1	90.0	5.3	6.0	6.5	7.7	7.7	2.2
W2326-7	603	548	45.5	90.9	7.2	7.2	5.7	8.9	7.7	2.0
W2250-3rus	598	438	10.7	73.2	6.5	5.7	6.2	8.3	8.0	1.6
W2310-4	583	515	25.9	88.3	5.8	5.8	5.7	9.0	8.3	2.3
W2249-4rus	581	468	41.6	80.6	5.3	5.0	4.8	8.0	7.3	2.0
W2310-3	579	506	57.0	87.3	5.5	5.0	6.3	7.9	7.7	1.9
W2275-7R	574	420	29.1	73.2	4.8	5.7	4.7	8.5	8.0	2.0
W2285-5	567	502	49.5	88.6	5.3	5.7	5.3	8.7	7.7	2.1
Avg chips*	555	490	42.1	88.7	5.7	5.8	5.6	8.7	8.0	2.0
Avg rus	551	394	64.9	71.7	6.2	6.1	6.1	8.0	7.3	1.6
Avg red	494	423	24.6	85.6	4.8	5.3	4.0	7.9	8.2	2.0
Average	543	467	41.6	86.3	5.6	5.7	5.4	8.5	8.0	2.0

Tot = Total yield in cwt/A; A's = A size (>1 7/8" tubers) yield in cwt/A; C's = Culls cwt/A; %As = A size yield as percent of total yield; VMt: Vine maturity (1=early, 9=late); Vig: Vine vigor (1=weak, 9=vigorous); EBt: Early blight (1=very susceptible, 9=none); Skg: Skinning (9=no skinning); TbU: Tuber shape uniformity (9=very uniform); Pref: Preference, general rating (1=not desired, 2=acceptable, 3=good, 4=very good).

* Averages are for the whole initial trial of 50 entries.

Wisconsin Table 8. Advanced Selection Trial 1, Hancock, 1999 (127 days).
Excerpt from a 50 entry trial.

Cultivar	Int.Def.%			SpGv	Chip Color				
	HH	IBS	VD		Rev	3mD	3mR	6mD	6mR
Atlantic	13	27	20	79	3.4	9.2	9.1	9.9	9.7
Dak.Pearl	40	0	7	74	2.8	4.2	4.6	8.3	7.9
DRNorland	0	13	13	63	5.9	9.9	9.9	9.9	9.9
Goldrush	0	7	27	64	6.6	9.9	9.9	9.9	9.9
Norvalley	7	7	7	71	3.3	7.8	7.9	9.2	9.1
R.Burbank	0	13	0	70	6.5	9.9	9.9	9.9	9.9
Snowden	0	13	7	75	3.1	8.3	7.8	9.1	6.4
W2265-25	0	0	20	82	3.8	8.3	8.3	9.8	8.8
W2325-1	0	27	40	70	3.1	8.2	7.8	8.1	8.3
W2358-1	0	0	7	77	4.2	8.1	7.9	9.7	8.9
W2279-4R	0	0	67	59	6.5	9.9	9.9	9.9	9.9
W2310-11	7	7	33	75	3.4	7.8	7.9	9.9	9.2
W2256-5	7	13	7	77	3.1	8.5	8.0	9.9	9.5
W2319-5	0	0	0	68	3.5	8.6	7.8	9.4	8.5
W2363-5	0	40	13	84	3.7	7.8	7.4	9.0	7.8
W2326-7	7	20	13	76	3.7	9.6	9.5	9.8	8.8
W2250-3rus	0	0	40	66	7.9	9.9	9.9	9.9	9.9
W2310-4	0	13	20	79	3.3	7.1	7.4	8.8	7.7
W2249-4rus	7	7	13	75	6.3	9.9	9.9	9.9	9.9
W2310-3	0	7	10	81	2.8	5.8	6.1	7.4	7.0
W2275-7R	0	0	27	66	6.6	9.9	9.9	9.9	9.9
W2285-5	0	0	40	75	3.7	7.8	7.9	9.0	9.3
Avg chips*	0	0	0	75	3.7	8.2	8.2	9.3	8.7
Avg rus	7	11	16	70	6.9	9.9	9.9	9.9	9.9
Avg red	0	5	19	60	6.7	9.9	9.9	9.9	9.9
Average	5	11	15	73	4.6	8.7	8.7	9.5	9.1

Int.Def.%, Internal Defects: HH=Hollow heart (%); IBS =Internal Brown Spot (%); VD=Vascular discoloration (%). SpGv: Specific Gravity -1 x 1000; Chip Color: Rev = Reversion, 3m = 3 month storage at 40°F (D=direct, R = reconditioned 14 days at 65°F), 6m = 6 month storage at 40°F (D=direct, R = reconditioned 14 days at 65°F). Visual scores in CPII scale (1=light, 10=dark).

* Averages are for the whole initial trial of 50 entries.

Wisconsin Table 9. Advanced Selection Trial 2, Hancock, 2001 (121 days).

Cultivar	Yield				Vines			Tubers		
	Tot	A's	C's	%As	VMt	Vig	EBt	Skg	TbU	Pref
Atlantic	497	447	22.0	89.9	5.3	6.0	5.7	8.9	7.0	1.9
DRNorland	460	393	21.0	85.3	3.3	4.7	2.3	8.3	8.0	1.9
Dak.Pearl	467	414	32.3	88.7	5.2	5.2	4.7	9.0	9.0	2.3
Goldrush	436	358	50.6	82.1	5.2	5.5	4.5	8.3	7.3	2.0
Norvalley	541	483	24.8	89.3	4.7	6.2	4.2	8.9	7.3	2.0
Snowden	598	537	24.3	89.9	6.0	6.2	5.8	8.9	7.0	1.9
W2155-2	668	639	12.3	95.6	6.0	6.2	5.7	7.0	8.0	2.0
W2133-1	653	617	12.3	94.4	6.2	5.7	5.8	7.7	8.7	2.5
W2143-1	642	582	32.9	90.6	6.0	6.3	6.3	9.0	8.6	2.2
W1201	622	571	24.8	91.8	6.7	6.3	6.5	8.7	8.3	2.1
W2166-3	612	557	24.3	91.0	6.7	6.0	6.0	8.6	8.3	2.1
W2128-8	607	568	22.0	93.5	6.2	6.7	7.0	5.0	8.0	2.0
W2132-1	600	505	70.4	84.1	6.7	5.5	6.3	8.6	8.7	1.8
W2275-9R	569	475	32.3	83.5	5.8	6.2	5.7	8.6	8.3	2.4
W2192-2	569	495	49.1	87.0	6.0	5.3	5.5	8.7	8.0	2.4
W2145-6	557	518	12.6	93.1	5.5	5.7	5.7	8.3	8.3	2.1
W2132-2	556	512	18.6	92.1	6.2	5.7	6.5	9.0	8.0	2.1
W2233-2	547	471	49.1	86.2	5.5	6.5	6.0	8.0	9.0	2.4
W2371-1rus	539	425	60.3	78.7	6.2	6.2	6.2	9.0	8.3	2.2
W2275-3R	533	450	29.8	84.5	5.2	5.7	5.0	8.6	8.5	2.2
W2114-5	530	488	19.0	92.0	5.7	5.8	5.7	8.6	8.7	2.1
W2145-11	491	442	15.9	90.0	5.5	5.5	5.7	9.0	8.6	2.1
W2169-1R	459	415	5.5	90.5	4.7	5.8	4.3	8.9	8.0	2.2
W2154-1	452	388	29.4	85.9	4.8	5.3	4.0	9.0	8.0	2.0
W2123-2	440	386	30.6	87.7	5.8	5.2	4.5	9.0	8.0	2.0
W2203-2	396	364	16.9	91.9	4.8	5.3	5.3	7.7	8.0	2.0
W2126-1	385	320	25.5	83.2	5.5	5.7	5.7	7.5	8.5	2.0
Avg chips*	541	486	27.4	89.8	5.7	5.8	5.5	8.5	8.2	2.1
Avg rus	500	409	55.4	80.4	4.8	5.4	4.3	8.7	8.2	2.0
Avg red	557	495	17.2	89.0	5.4	6.0	5.2	8.3	8.2	2.2
Average	540	482	28.0	88.9	5.6	5.8	5.4	8.5	8.2	2.1

Tot = Total yield in cwt/A; A's = A size (>1 7/8" tubers) yield in cwt/A; C's = Culls cwt/A; %As = A size yield as percent of total yield; VMt: Vine maturity (1=early, 9=late); Vig: Vine vigor (1=weak, 9=vigorous); EBt: Early blight (1=very susceptible, 9=none); Skg: Skinning (9=no skinning); TbU: Tuber shape uniformity (9=very uniform); Pref: Preference, general rating (1=not desired, 2=acceptable, 3=good, 4=very good).

* Averages are for the whole initial trial of 30 entries.

Wisconsin Table 10. Advanced Selection Trial 2, Hancock, 2001 (121 days).

Cultivar	Int.Def.%			SpGv	Chip Color				
	HH	IBS	VD		Rev	3mD	3mR	6mD	6mR
Atlantic	0	13	27	87	3.9	9.9	9.3	9.9	9.9
DRNorland	0	0	7	71	6.7	9.9	9.9	9.9	9.9
Dak.Pearl	33	13	7	79	3.5	6.4	6.1	9.1	7.9
Goldrush	0	7	7	69	7.1	9.9	9.9	9.9	9.9
Norvalley	0	0	0	80	3.1	8.5	9.0	9.7	8.5
Snowden	0	13	7	83	3.5	9.4	8.9	9.8	9.2
W2155-2	0	0	13	80	3.8	8.4	8.1	9.2	9.2
W2133-1	0	13	0	78	3.6	9.3	8.9	9.4	8.3
W2143-1	0	0	47	87	4.3	8.1	8.9	9.9	9.7
W1201	0	0	7	85	3.8	9.7	9.8	9.9	9.8
W2166-3	0	60	0	82	4.4	9.9	9.3	9.9	9.9
W2128-8	0	27	20	89	2.9	5.9	6.5	6.8	7.6
W2132-1	0	40	20	82	4.0	8.5	8.9	8.3	8.5
W2275-9R	0	0	20	73	7.2	9.9	9.9	9.9	9.9
W2192-2	0	0	13	72	5.5	9.7	9.3	9.9	9.9
W2145-6	7	13	7	86	3.9	9.8	9.8	9.3	9.3
W2132-2	0	0	20	86	5.0	9.9	9.7	9.9	9.9
W2233-2	13	7	33	77	3.3	8.1	7.6	9.1	8.3
W2371-1rus	7	0	0	69	7.1	9.9	9.9	9.9	9.9
W2275-3R	0	13	13	65	6.7	9.9	9.9	9.9	9.9
W2114-5	0	0	13	81	3.2	9.3	8.9	9.9	9.7
W2145-11	0	27	20	89	4.0	9.6	9.5	9.9	8.4
W2169-1R	0	0	13	75	7.5	9.9	9.9	9.9	9.9
W2154-1	0	0	7	87	2.7	7.5	7.2	8.3	6.9
W2123-2	0	0	13	86	4.2	9.9	9.9	9.9	9.9
W2203-2	0	0	0	88	2.9	8.1	8.3	9.9	8.6
W2126-1	0	13	13	87	3.7	9.2	9.3	9.9	9.4
Avg chips	3	11	13	82	4.1	9.0	8.9	9.5	9.1
Avg rus	3	0	3	69	7.1	9.9	9.9	9.9	9.9
Avg red	0	3	15	73	6.3	9.6	9.5	7.3	7.3
Average	2	10	13	80	4.6	9.2	9.5	8.7	8.8

Int.Def.%, Internal Defects: HH=Hollow heart (%); IBS =Internal Brown Spot (%); VD=Vascular discoloration (%). SpGv: Specific Gravity -1 x 1000; Chip Color: Rev = Reversion, 3m = 3 month storage at 40°F(D=direct, R = reconditioned 14 days at 65°F), 6m = 6 month storage at 40°F (D=direct, R = reconditioned 14 days at 65°F). Visual scores in CPII scale (1=light, 10=dark).

* Averages are for the whole initial trial of 30 entries.

Wisconsin Table 11. First Year Two Location (Rhinelander/Hancock) Breeding Trial Results, 2001. Best Lines from Advanced Selection Trials 1.

Chipping Lines (from 32 initial entries)

Variety /line	US#1 CwtA	US#1 %	VMt 1-9	Scb 1-9	Pref 1-4	IntD %	Spec Grav	Rev 1-10	6mD 1-10
Snowden	399	78	5.8	8.5	2.1	30	78	2.9	7.3
Atlantic	407	87	5.5	8.4	2.1	66	83	3.2	9.5
Norvalley	414	84	5.2	7.6	2.0	17	75	3.1	8.0
Dak. Pearl	332	88	4.5	9.0	2.3	37	77	2.8	6.5
W 2285-5	430	77	5.7	8.6	2.2	27	77	3.3	7.5
W 2327-4	411	88	5.9	7.3	1.8	6	85	2.7	7.3
W 2310-4	406	87	5.7	7.5	2.3	30	82	3.0	8.4
W 2358-1	386	72	6.2	8.2	1.5	7	79	3.6	8.4
W 2310-3	373	86	5.7	8.4	2.0	15	86	2.7	6.4
W 2324-5	359	85	6.0	8.7	2.0	13	86	2.9	7.8
W 2269-11	350	83	6.3	8.2	2.0	3	84	2.8	7.6
Avg chip*	390	86	5.7	8.3	2.0	30	78	3.3	8.4

Russet Lines (from 5 initial entries)

Variety /line	US#1 CwtA	US#1 %	VMt 1-9	Sksg 1-9	Scb 1-9	Pref 1-4	IntD %	Spec Grav	Fry 1-10
Goldrush	343	83	5.2	8.8	8.9	2.0	23	66	6.7
R. Burbank	306	72	6.2	7.8	9.0	1.9	13	72	6.2
W2249-4rus	408	81	5.3	8.5	8.7	2.1	19	75	5.4
Avg rus*	320	71	6.2	7.7	8.4	1.7	26	70	6.5

Red Lines (from 8 initial entries)

Variety /line	US#1 CwtA	US#1 %	VMt 1-9	Sksg 1-9	Scb 1-9	Pref 1-4	IntD %	TCol 1-9	EBt 1-9
DR Norland	308	87	4.1	8.5	9.0	2.2	24	5	3.7
W 2279-4R	494	87	6.0	8.6	7.9	2.1	17	6	6.8
W 2303-8R	442	92	5.5	8.5	8.2	2.3	11	8	5.4
W 2303-5R	380	91	5.1	8.4	7.3	2.0	17	6	5.0
W 2275-7R	223**	55	4.8	8.3	8.7	2.1	17	6	5.0
Avg red*	347	82	5.5	8.5	8.4	2.1	18	6	5.2

US#1 = yield in cwt/A and percent; VMt = Vine Maturity (1=very early, 9=very late); Sksg = Tuber Skinning (9=well set skin); Scb = Scab, tested in a very highly infested field (9=none); Pref = Preference or General Merit (1=not desired, 2=acceptable, 3=good, 4=very good); IntD = Internal Defects in percent from the total of >8 oz tubers (HH, IBS, VD); SpecGrav = Specific Gravity -1 x 1000; Rev = Fry (Chip) Color at Reversion (55°F 1 month storage; 1=very light, 10=very dark); 6mD = Chip Color when processed directly from 6 month storage at 40°F); TCol = Tuber Color (9 = very dark red); EBt = Early Blight (9 = none).

* Average of the whole trial ** B-size gourmet red line

Wisconsin Table 12. Second Year Two Location (Rhinelander/Hancock) Breeding Trial Results, 2001. Best Lines from Advanced Selection Trials 2.

Chipping Lines (from 19 initial entries)

Variety /line	US#1 CwtA	US#1 %	VMt 1-9	Scb 1-9	Pref 1-4	IntD %	Spec Grav	Rev 1-10	6mD 1-10
Snowden	409	86	5.8	8.3	2.0	14	86	3.3	7.9
Atlantic	411	90	5.8	8.9	2.0	47	88	3.6	9.8
Norvalley	435	88	5.1	8.2	2.1	3	81	3.0	8.0
Dak.Pearl	358	89	5.0	8.7	2.3	27	82	3.1	7.2
W 1201	505	91	6.5	9.0	2.1	4	88	3.5	9.4
W 2133-1	471	90	6.6	8.7	2.3	12	80	3.5	7.7
W 2128-8	434	91	6.8	8.9	1.7	23	90	3.0	6.6
W 2114-5	406	91	5.8	8.9	2.1	7	83	3.0	8.7
W 2154-1	388	87	5.3	6.5	1.8	7	87	2.5	6.2
W 2233-2	351	83	5.5	7.2	2.1	27	78	3.2	8.3
Avg chips*	398	88	5.8	8.5	5.0	17	84	3.6	8.6

Russet Lines (from two initial entries)

Variety /line	US#1 CwtA	US#1 %	VMt 1-9	Skg 1-9	Scb 1-9	Pref 1-4	IntD %	Spec Grav	Fry 1-10
Goldrush	318	85	5.8	8.7	7.7	1.9	7	70	7.3
W2371-1rus	408	84	6.0	8.8	6.8	2.2	7	74	6.9
Avg rus*	363	85	5.9	8.7	7.2	2.1	7	72	7.1

Red Lines (from four initial entries)

Variety /line	US#1 CwtA	US#1 %	VMt 1-9	Skg 1-9	Scb 1-9	Pref 1-4	IntD %	TCol 1-9	EBt 1-9
DRNorland	357	87	4.2	8.2	9.0	2.1	4	5	3.8
W2275-9R	389	83	6.2	8.2	9.0	2.2	10	8	6.4
W2275-3R	385	81	5.9	8.7	8.9	2.2	14	8	5.9
W2169-1R	372	90	5.4	8.8	8.9	2.2	7	8	5.4
Avg red*	381	86	5.4	8.1	9.0	2.1	8	7	5.4

US#1 = yield in cwt/A and percent; VMt = Vine Maturity (1=very early, 9=very late); Skg = Tuber Skinning (9=well set skin); Scb = Scab, tested in a very highly infested field (9=none); Pref = Preference or General Merit (1=not desired, 2=acceptable, 3=good, 4=very good); IntD = Internal Defects in percent from the total of >8 oz tubers (HH, IBS, VD); SpecGrav = Specific Gravity -1 x 1000; Rev = Fry (Chip) Color at Reversion (55°F 1 month storage; 1=very light, 10=very dark); 6mD = Chip Color when processed directly from 6 month storage at 40°F); TCol = Tuber Color (9 = very dark red); EBt = Early Blight (9 = none).

* Average of the whole trial.

Wisconsin Table 13. North Central Regional Trial, Hancock, 2001 (121 days).

Cultivar	Cwt/A		Vines		SpGv	Chip Color			Pref
	Tot	A's	VMt	EBt		Rev	3mD	3mR	
ND5084-3R	748	655	7.4	6.3	65	8.7	9.9	9.9	2.3
MN 19525R	521	569	5.4	4.0	83	7.1	8.8	9.9	2.1
R.Pontiac	642	519	6.5	5.6	70	9.9	9.9	9.9	1.0
MI Purple	552	497	5.9	4.8	83	7.2	9.9	9.9	2.0
DR.Norland	477	427	3.8	3.6	74	6.7	9.9	9.9	2.0
CV89023-2R	487	398	5.0	4.6	92	7.6	9.9	9.9	1.9
V0299-4R	470	373	5.6	5.1	78	5.6	9.8	9.9	2.5
Dak.Rose	400	364	3.8	3.5	67	8.4	9.9	9.9	1.8
ND3196-1R	405	354	4.5	2.8	82	7.7	9.9	9.9	2.2
W1836-3rus	658	511	6.9	7.0	79	5.9	9.9	9.9	2.1
MN18747rus	440	395	3.5	3.0	75	3.5	8.7	9.9	2.0
A90586-11rus	561	391	6.5	6.9	86	5.8	9.4	9.9	1.7
V0168-3rus	406	359	2.5	2.5	76	6.9	9.8	9.9	2.0
R.Norkotah	408	357	3.3	2.8	74	5.2	9.1	9.9	2.3
R.Burbank	451	326	6.5	6.6	80	7.0	9.9	9.9	1.9
MSE192-8rus	371	297	4.6	4.0	72	6.3	9.9	9.9	2.4
NY 112	639	571	5.4	6.9	81	3.8	8.0	9.4	1.8
Sandy	711	568	8.5	7.6	98	6.9	8.8	8.4	1.8
MSF 373-8	593	537	6.3	6.6	78	3.9	7.8	9.4	2.0
W 1201	600	535	6.4	6.1	86	3.7	7.2	8.0	2.1
W 1431	589	525	5.6	5.9	88	3.6	6.3	7.0	2.2
Snowden	584	525	6.3	6.4	81	4.2	7.4	6.4	2.0
W 1386	604	513	5.6	6.1	80	3.9	7.1	9.0	1.8
B 0766-3	526	486	6.3	6.3	80	3.9	8.8	6.4	2.3
NorValley	541	480	5.3	4.1	76	3.0	8.4	7.0	2.2
Atlantic	525	449	5.5	5.8	86	4.0	7.7	7.0	2.0
MSF 099-3	488	402	6.0	5.6	80	3.6	7.6	7.0	1.8
C75-5-297	550	393	8.8	8.3	85	7.6	9.3	9.9	1.8
MN 19157	389	324	5.3	4.4	89	4.3	7.6	9.9	2.3
V 0123-25	376	282	3.9	2.9	91	4.7	7.7	7.0	1.9
MN 19315	390	214	4.4	2.9	94	3.6	7.9	9.9	2.0
Sylvia	540	405	5.5	5.1	70	6.8	9.9	9.9	2.0
Amandine	446	212	3.5	3.0	71	8.6	9.9	9.9	2.1
Cynthia	334	274	5.6	5.8	75	6.6	9.9	9.9	1.7
Avg chip	526	450	5.5	5.4	84	5.7	8.9	9.2	2.0
Avg rus	471	377	5.3	4.5	77	5.8	9.6	8.0	2.0
Avg red	522	451	5.8	5.4	77	7.6	9.8	9.9	2.0
Average	512	423	5.5	5.1	80	5.8	8.9	9.2	2.0

Tot = Total yield, A's = A size (>1 7/8" tubers) yield; VMt: Vine maturity (1=early, 9=late); EBt: Early blight (1=very susceptible, 9=none); SpG: (Specific Gravity -1) x 1000. Chip color: Rev = after 5 days at 40°F; 6m = after six month storage at 40°F, processed directly (D) or with reconditioning (R), respectively; visual score (CPII scale: 1=light, 10=dark).

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